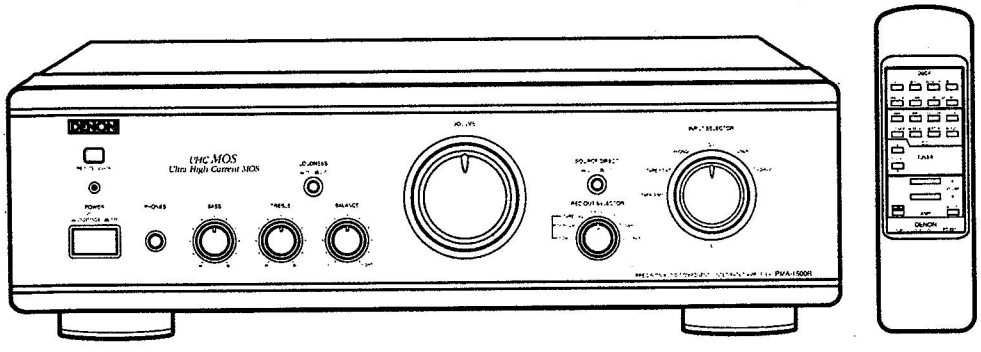
DENON

Hi-Fi Integrated Stereo Amplifier

SERVICE MANUAL

MODEL PMA-1500R

INTEGRATED STEREO AMPLIFIER



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● Some illustration using in this service manual is slightly different from the actual set.

NIPPON COLUMBIA CO., LTD.

• SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

• **FOR U.S.A. & CANADA MODEL ONLY**

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

• **POUR LES MODELES AMERICAINS ET CANADIENS UNIQUEMENT**

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

安全注意事項

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

注意：為減少觸電危險，切勿折下機殼（或機背）。機身內並無用戶修理用零件。請交由專業修理人員修理本機。

三角形內有箭頭的閃電符號旨在提醒用戶，本產品機殼內有未經絕緣的"危險電壓"，其幅度足以使人觸電而發生危險。

三角形內加感嘆號旨在提醒用戶，有重要的操作與維修說明書配合本機。

警告：為減少著火或觸電危險，切勿讓本機受雨淋濕或受潮。

●DECLARATION OF CONFORMITY
We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:
EN60065, EN55013, EN55020, EN60555-2 and EN60555-3.
Following the provisions of 73/23/EEC, 89/336/EEC and 93/68/EEC Directive.

●ÜBEREINSTIMMUNGSERKLÄRUNG
Wir erklären unter unserer Verantwortung, daß dieses Produkt, auf das sich diese Erklärung bezieht, den folgenden Standards entspricht:
EN60065, EN55013, EN55020, EN60555-2 und EN60555-3.
Entspricht den Verordnungen der Direktive 73/23/EEC, 89/336/EEC und 93/68/EEC.

●DECLARATION DE CONFORMITE
Nous déclarons sous notre seule responsabilité que l'appareil, auquel se réfère cette déclaration, est conforme aux standards suivants:
EN60065, EN55013, EN55020, EN60555-2 et EN60555-3.
D'après les dispositions de la Directive 73/23/EEC, 89/336/EEC et 93/68/EEC.

●DICHIARAZIONE DI CONFORMITÀ
Dichiariamo con piena responsabilità che questo prodotto, al quale la nostra dichiarazione si riferisce, è conforme alle seguenti normative:
EN60065, EN55013, EN55020, EN60555-2 e EN60555-3
In conformità con le condizioni delle direttive 73/23/EEC, 89/336/EEC e 93/68/EEC
QUESTO PRODOTTO E' CONFORME
AL D.M. 28/08/95 N. 548

●DECLARACIÓN DE CONFORMIDAD
Declaramos bajo nuestra exclusiva responsabilidad que este producto al que hace referencia esta declaración, está conforme con los siguientes estándares:
EN60065, EN55013, EN55020, EN60555-2 y EN60555-3.
Siguiendo las provisiones de las Directivas 73/23/EEC, 89/336/EEC y 93/68/EEC.

●EENVORMIGHEIDSVERKLARING
Wij verklaren uitsluitend op onze verantwoordelijkheid dat dit produkt, waarop deze verklaring betrekking heeft, in overeenstemming is met de volgende normen:
EN60065, EN55013, EN55020, EN60555-2 en EN60555-3.
Volgens de bepalingen van de Richtijnen 73/23/EEC, 89/336/EEC en 93/68/EEC.

●ÖVERENSSTÄMMELSESINTYG
Härmed intygas helt på eget ansvar att denna produkt, vilken detta intyg avser, uppfyller följande standarder:
EN60065, EN55013, EN55020, EN60555-2 och EN60555-3.
Enligt stadgarna i direktiv 73/23/EEC, 89/336/EEC och 93/68/EEC.

●DECLARAÇÃO DE CONFORMIDADE
Declaramos sob nossa exclusiva responsabilidade que este produto, ao qual esta declaração corresponde, está em conformidade com as seguintes normas:
EN60065, EN55013, EN55020, EN60555-2 e EN60555-3.
De acordo com o estabelecido nas Directivas 73/23/EEC, 89/336/EEC e 93/68/EEC.

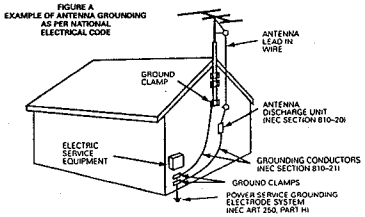
SAFETY INSTRUCTIONS

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

FIGURE A
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

NEC – NATIONAL ELECTRICAL CODE

12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines – An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

NOTE:
1. Always keep the POWER switch on the main unit turned on.
2. Turn the power on and off from the remote control unit.
3. Unplug the power cord when you do not plan to use the unit for a long period of time.

CAUTION:
If the POWER LED is lit and orange, this means that the power is turned off from the remote control unit. Turn the power on from the remote control unit.

HINWEIS:
1. Lassen Sie den Netzschalter (POWER) am Hauptgerät stets eingeschaltet.
2. Schalten Sie den Strom mit dem Fernbedienungsgerät ein–und aus.
3. Trennen Sie das Netzkabel vom Netz ab, wenn Sie beabsichtigen, das Gerät über einen längeren Zeitraum hinweg nicht zu benutzen.

VORSICHT:
Wenn das POWER LED orange leuchtet, so bedeutet dies, daß der Strom vom Fernbedienungsgerät aus ausgeschaltet worden ist. Schalten Sie den Strom vom Fernbedienungsgerät aus ein.

REMARQUE:
1. S'assurer que le commutateur d'alimentation (POWER) sur l'unité principale soit toujours dans la position activée.
2. Allumer et éteigner l'appareil avec la télécommande.
3. Débrancher le cordon d'alimentation lorsque l'appareil ne sera pas utilisé pendant une longue période.

ATTENTION:
Si le LED POWER est allumé et orange, cela signifie que l'appareil est mis hors circuit par la télécommande. Allumer l'appareil avec la télécommande.

NOTA:
1. Tenete sempre l'interruttore della corrente (POWER) dell'unità principale nella posizione di attivazione.
2. Accendete e spegnete la corrente usando il telecomando.
3. Scollegate il filo di alimentazione quando avete intenzione di non usare l'apparecchio per un lungo periodo.

AVVERTIMENTO:
Se il LED di accensione è illuminato di colore arancione, questo significa che la corrente e' stata spenta con il telecomando. Riaccendete la corrente usando il telecomando.

NOTA:
1. Mantenga siempre activado el interruptor de alimentación (POWER) en la unidad principal.
2. Encienda y apague el equipo desde la unidad de control remoto.
3. Cuando la unidad vaya a estar fuera de uso por un período prolongado de tiempo, desconecte el cable de alimentación.

PRECAUCION:
Si el LED POWER está encendido de color naranja, significará que la alimentación a la unidad ha sido desconectada desde la unidad de control remoto. Conecte la alimentación desde la unidad de control remoto.

OPMERKING:
1. Zorg er altijd voor dat de stroomschakelaar (POWER) van het hoofdtoestel in de ingeschakelde stand staat.
2. Schakel de stroom in en uit m.b.v. de afstandsbediening.
3. Trek het netsnoer uit wanneer u denkt het toestel gedurende een lange periode niet te gebruiken.

WAARSCHUWING:
Als de POWER LED brandt en oranje is, betekent dit dat de spanning met de afstandsbediening is uitgeschakeld. Schakel de spanning in met de afstandsbediening.

OBSERVERA:
1. Låt alltid strömbrytaren (POWER) på huvudenheten vara påslagen.
2. Slå till/från strömmen med hjälp av fjärrkontrollen.
3. Koppla loss nätkabeln om apparaten inte skall användas under lång tid.

VARNING:
Om POWER-lampan lyser orange det att strömmen har stängts av via fjärrkontrollen. Strömmen måste då slås på via fjärrkontrollen igen.

NOTA:
1. Mantenha o interruptor da Corrente (POWER) na unidade principal sempre ligado.
2. Ligue e desligue a corrente a partir da unidade de controlo remoto.
3. Desconecte o fio de força quando intentar não utilizar a unidade por longo tempo.

CAUTELA:
Se o POWER LED estiver aceso e laranja, isto significa que a força se desligou a partir do controle remoto. Ligue a força a partir do controle remoto.

註：
1．主機上的POWER（電源）犁須一直保持接通。
2．由遙控器操旋電源之開和關。
3．本機打算長時間不用時應將電源接線選拔下。

注意：
若電源發光二極管(LED)亮並顯色，意味著來自遙控器的電源已關掉。 請接通來自遙控器的電源。

PRECAUTIONS FOR INSTALLATION
Leave at least 10 cm of space between this unit and any other component placed above.

SICHERHEITSMASSNAHMEN BEIM EINBAU
Lassen einen Mindestabstand von 10 cm zwischen diesem Gerät und der anderen Komponente, die daraufgestellt wird.

PRECAUTIONS D'INSTALLATION
Prévoir un espace d'au moins 10 cm entre l'unité et tout autre appareil se trouvant au-dessus.

PRECAUZIONI PER L'INSTALLAZIONE
Lasciate uno spazio libero di almeno 10 cm fra quest'unità e qualsiasi altro componente che è collocato sopra la stessa.

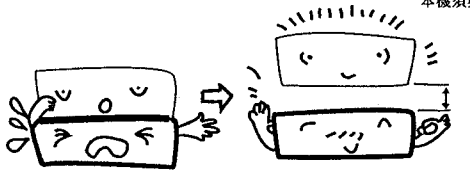
PRECAUCIONES PARA LA INSTALACION
Deje por lo menos 10 cm. de espacio entre esta unidad y cualquier otro componente situado sobre ella.

VOORZORGSMAATREGELEN
Bij plaatsing dient u een ruimte van minstens 10 cm open te laten tussen dit toestel en een ander erop geplaatst komponent.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN
Se till att det finns minst 10 cm mellanrum mellan apparaten och en ev. annan apparat som ställs ovanpå.

CUIDADOS NA INSTALAÇÃO
Deixe um espaço de pelo menos 10 cm entre esta unidade e qualquer outro componente colocado acima.

安装注意
本機須與其下方擺置的其它音響設備相隔至少10厘米。

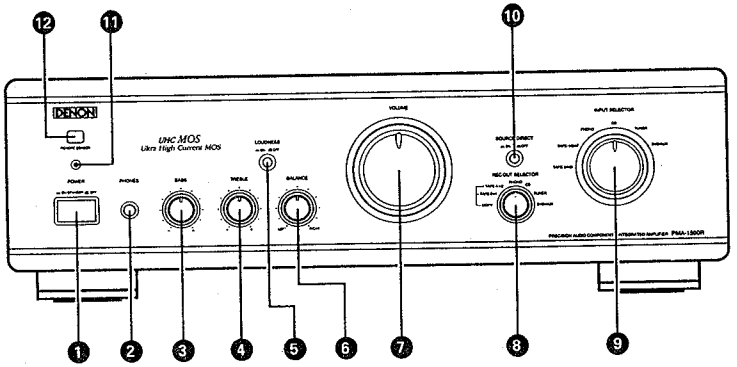


10 cm or more
10 cm oder mehr
10 cm ou plus
10 cm o più

10 cm o più
10 cm of meer
10 cm eller mer
10 cm ou mais
10 厘米以上

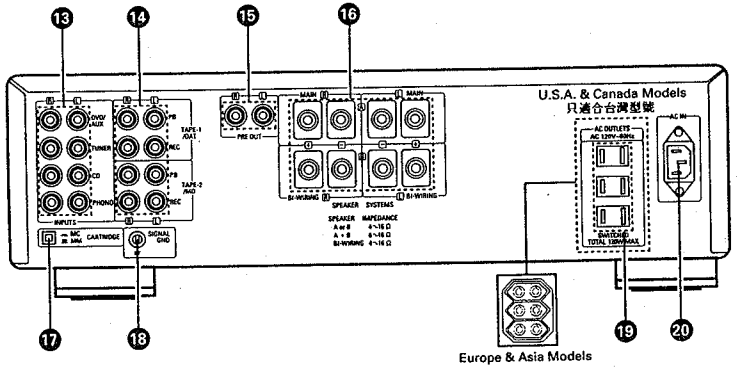
FRONT PANEL
FRONTPLATTE
PANNEAU AVANT
PANNELLO ANTERIORE

PANEL FRONTAL
VOORPANEEL
FRAMSIDA
PAINEL FRONTAL
正面



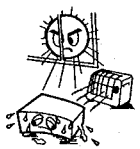
REAR PANEL
RÜCKWAND
PANNEAU ARRIERE
PANNELLO POSTERIORE

PANEL TRASERO
ACHTERPANEEL
BAKSIDA
PAINEL TRAZEIRO
背板

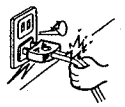


Europe & Asia Models

NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO / NOTAS SOBRE EL USO / ALVORENS TE GEBRUIKEN / OBSERVERA OBSERVAÇÕES QUANTO AO USO

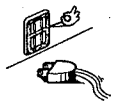


- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine ausreichend Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte. Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.
- Evite altas temperaturas
  Permita la suficiente dispersión del calor cuando está instalado en la consola.
- Vermijd hoge temperaturen.
  Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst.
- Undvik höga temperaturer.
  Se till att det finns möjlighet till god värmeavledning vid montering i ett rack.
- Evite temperaturas altas
  Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira.

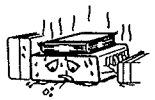


- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura. Agite per la spina quando scollegate il cevo dalla presa.
- Maneje el cordón de energía con cuidado. Sostenga el enchufe cuando desconecte el cordón de energía.
- Hanteer het netsnoer voorzichtig.
  Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld.
- Hantera nätkabeln varsamt.
  Håll i kabeln när den kopplas från el-uttaget.
- Manuseie com cuidado o fio condutor de energia.
  Segure a tomada ao desconectar o fio.

- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.
- Mantenga el equipo libre de humedad, agua y polvo.
- Laat geen vochtigheid, water of stof in het apparaat binnendringen.
- Utsätt inte apparaten för fukt, vatten och damm.
- Mantenha o aparelho livre de qualquer umidade, água ou poeira.



- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
- Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo.
- Neem altijd het netsnoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt.
- Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid.
- Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período.



*(For sets with ventilation holes)

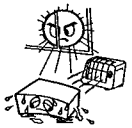
- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.
- No obstruya los orificios de ventilación.
- De ventilatieopeningen mogen niet worden beblokkeerd.
- Täpp inte till ventilationsöppningarna.
- Não obstrua os orifícios de ventilação.

- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.
- No deje objetos extraños dentro del equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten.
- Não deixe objetos estranhos no aparelho.

- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevi che l'unità non venga in contatto con insetticidi, benzolo o solventi.
- No permita el contacto de insecticidas, gasolina y diluyentes con el equipo.
- Laat geen insektenverdelgende middelen, benzine of verfverdunner met dit apparaat in kontakt komen.
- Se till att inte insektsmedel på spraybruk, bensen och thinner kommer i kontakt med apparatens hölje.
- Não permita que inseticidas, benzina e dissolvente entrem em contacto com o aparelho.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, né modificate l'unità in nessun modo.
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifiëren.
- Ta inte isär apparaten och försök inte bygga om den.
- Nunca desmonte ou modifique o aparelho de alguma forma.

使用注意事項

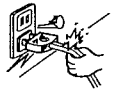


防止高溫

- 勿將本機放置於受烈日曝曬或靠近發熱器材的位置。

機架／機箱安裝注意

- 避免將本機裝於密閉的機架內。
- 裝於機架或機箱時，要配備足夠大的通風孔，以加強散熱。

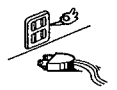


留意電源線

- 從插座拔出插頭時切勿拔電源線，應該抓住插頭將其拔出。

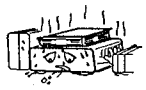
注意濕氣，水和塵

- 勿將本機放置於濕度很高或多塵的位置。花瓶或其它有水的物件均不宜擺在本機上方。



當你外出時

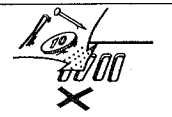
- 長時間不用本機時，例如外出旅行時，須將插頭拔離電源插座。



* 備有通風孔的機殼

勿堵塞機殼的通風孔

- 堵塞通風孔會損壞本機。
- 各通風孔對本機內部散熱異常重要。必須特別留意，若通風孔有物件阻擋，就會使機內溫度升得很高。



勿讓雜物掉入機內

- 特別要留意勿讓針、髮夾、硬幣等進入本機。

保護機殼

- 避免在本機附近噴灑殺蟲劑，也勿用汽油天拿水或其它溶劑揩機箱，因這類溶液易引起品或顏色改變。揩塵要用軟布，在用化學處理過的布揩抹時請小心遵守說明書規定。

勿打開機殼

- 打開機殼頂蓋或底板，及伸手入機殼內都是危險的。切勿打開機殼。如果本機表現有不妥當時，宜立刻拔下電源插頭，再與購入本機的商店或鄰近經銷商聯絡。

Please check to make sure the following items are included with the main unit in the carton:

(1) Operating Instructions	1
(2) Remote Control Unit (RC-837)	1
(3) Batteries R6P (AA)	2
(4) AC Power Cord	1
(5) Service Station List	1

Bitte überprüfen Sie, ob die folgenden Teile vollständig in der Verpackung enthalten sind:

(1) Bedienungsanleitung	1
(2) Fernbedienung (RC-837)	1
(3) Batterien vom Typ R6P (AA)	2
(4) AC-Netzkabel	1
(5) Serice-Sender-Liste	1

Veuillez contrôler que les articles suivants sont bien joints à l'appareil principal dans le carton:

(1) Mode d'emploi	1
(2) Unité de télécommande (RC-837)	1
(3) Piles R6P (AA)	2
(4) Cordon électrique AC	1
(5) Liste des stations	1

Controllare che le parti seguenti si trovino imballate con l'apparecchio nella scatola di spedizione.

(1) Libretto delle istruzioni	1
(2) Telecomando (RC-837)	1
(3) Batterie R6P (AA)	2
(4) Filo di alimentazione CA	1
(5) Lista dei centri di assistenza tecnica	1

Por favor verifique asegurandose de que los siguientes artículos son empacados en la caja pero separados de la unidad principal.

(1) Manual de instrucciones	1
(2) Unidad de control remoto (RC-837)	1
(3) Pilas R6P (AA)	2
(4) Cable de corriente CA	1
(5) Lista de estaciones de servicio	1

Kontroleer of de volgende accessoires bij het hoofdtoestel in de doos zijn verpakt:

(1) Gebruiksaanwijzing	1
(2) Afstandsbediening (RC-837)	1
(3) Batterijen R6P (AA)	2
(4) Netsnoer	1
(5) Lijst met service-adressen	1

Kontrollera att följande, förutom huvudapparaten, finns med i kartongen.

(1) Bruksanvisning	1
(2) Fjärrkontroll (RC-837)	1
(3) Batterier R6P (AA)	2
(4) Nätsladd	1
(5) Lista över servicestållen	1

Certifique-se de que as seguintes peças estão incluídas na embalagem fora da unidade principal:

(1) Instruções de operação	1
(2) Unidade de controle remoto (RC-837)	1
(3) Baterias R6P (AA)	2
(4) Cabo de CA	1
(5) Lista de Estações de Serviço	1

下列部品隨主機包裝於同一紙箱內，請查對：

(1) 操作說明書	1
(2) 遙控器RC-837	1
(3) 電池 R6P (AA)	2
(4) 交流電源線	1
(5) 維控站錄－一覽表	1

1 DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS (Refer to Page 5)

❶ POWER (Power Switch)
When the power switch is turned ON (▬), the POWER LED ⓫ lights. When the power switch is turned ON, power is supplied to the unit. It takes a few seconds after the power is turned on for the unit to warm up. This is due to the built-in muting circuit that eliminates noise during the on/off operation.

❷ PHONES (Headphone Terminal)
This terminal is used to plug in the headphones.
(The SPEAKER output is turned off when the headphones are plugged in.)
To prevent hearing loss, do not raise the volume level excessively when using headphones.

❸ BASS (Bass Control)
This knob is used to control the bass quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range below 1000 Hz. The bass is emphasized as the knob is moved off center to the right (↷), and reduced as it is moved to the left (↶).

❹ TREBLE (Treble Control)
This knob is used to control the treble quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range above 1000 Hz. The treble is emphasized as the knob is moved off center to the right (↷), and reduced as it is moved to the left (↶).

> **NOTE:**
> When the Volume control ❼ is turned right (↷) from the center position, the adjustment range of the BASS ❸, TREBLE ❹ and LOUDNESS ❺ controls decreases. If the Volume control ❼ is turned fully right the bass and treble cannot be adjusted.

❺ LOUDNESS (Loudness Switch)
When the volume is low, it is difficult for the human ear to clearly distinguish notes in the low and high frequency ranges. The loudness switch allows a simple "one-touch" correction of this difficulty. Press the loudness switch ON (▬) when listening to music at a low volume. The low notes and high notes will be corrected to produce a natural sound.

❻ BALANCE (Balance Control)
This knob is used to adjust the balance between the left and right channels. When it is set to the center position, the amplitude of the amplifier is equal on both sides. If there is a difference in the left and right channel output voltages for a cartridge, move the knob to the left and the right to adjust it. If the volume on the right side is too low, turn the knob to the right (↷). If the volume on the left side is too low, turn the knob to the left (↶). This will achieve an even balance on the left and right sides.

❼ VOLUME (Volume Control)
This knob controls the overall volume level.
Turn the knob to the right (↷) to raise the volume and to the left (↶) to lower it.

❽ REC OUT SELECTOR (Recording Output Select Switch)
Use this switch to select the recording component.
- **PHONO:**
  Used to recording from the turntable.
- **CD:**
  Used to recording from the CD player.
- **TUNER:**
  Used to recording from the tuner.
- **DVD / AUX:**
  Used to recording component that connected to the AUX terminal.
- **TAPE-1 ▶ 2:**
  Used to recording from the tape deck connected to the TAPE-1 jacks.
- **TAPE-2 ▶ 1:**
  Used to recording from the tape deck connected to the TAPE-2 jacks.

❾ INPUT SELECTOR (Input Select Switch)
This switch is used to select the input signal for the program source.
- **PHONO:**
  Use this position when using the record player connected to the PHONO terminals.
  Use the CARTRIDGE selection switch ⓱ to switch the sensitivity to correspond to the cartridge type being used.
- **CD:**
  Used to listen a compact disc player or other component that is connected to the CD terminals.
- **TUNER:**
  Used to play a component such as an FM/AM tuner or a TV tuner that is connected to the TUNER terminals.
- **DVD / AUX:**
  Used to play a component such as a HiFi video player, TV tuner or tape deck that is connected to the DVD/AUX terminals.
- **TAPE-1 / DAT:**
  Use this position when using the tape deck, etc., connected to the TAPE-1/DAT terminals.
- **TAPE-2 / MD:**
  Use this position when using the tape deck, etc., connected to the TAPE-2/MD terminals.

❿ SOURCE DIRECT (Source Direct Switch)
The controls (BASS ❸, TREBLE ❹, LOUDNESS ❺ and BALANCE ❻) can be used when this switch is in the OFF (▙) position.
When set to the ON (▬) position, the above controls are by-passed and the signals are input directly to the volume control circuit, providing high quality sound.

⓫ POWER LED
The LED indicates the set's operating mode.

Main unit power switch	Main unit mode	LED color
ON (▬)	Operating	Lit red
	Mute	Flashing red
	Standby (power off from remote control)	Lit orange
OFF (▙)		Off

The mute mode is set for several seconds when the main unit's power switch is turned ON (▬) or when the standby mode is canceled from the remote control unit. The LED flashes red during the mute mode, then stops flashing, remaining lit, once the set is operable.

⓬ REMOTE SENSOR (Remote Control Sensor)
This sensor receives the infra-red light transmitted from the wireless remote control unit.
For remote control, point the wireless remote control unit towards the sensor.

⓭ INPUTS terminals
These are input terminals for CD players, turntables, AM/FM tuners or other playback components.

> **NOTE:**
> - The PHONO input terminals are equipped with a short pin-plug. Remove this plug to connect a record player.
>   Store the removed short pin-plug in a safe place so as not to lose it.
> - Do not plug a short pin plug into the REC (recording output) terminals. Doing so will result in a loss of sound and may damage connected equipment.

⓮ TAPE PLAY and REC terminals
Playback and Recording Terminals
- Playback Terminals
- Recording Terminals

⓯ PRE-OUT terminals
- Use these to connect an extra power amplifier.
- Connect the extra power amplifier's input terminals to the PMA-1500R's pre-out terminals.

⓰ SPEAKER SYSTEMS terminals
Connect the speaker systems here.

⓱ CARTRIDGE (Cartridge Selection Switch)
This switch is set according to the type of player cartridge to be used.
Set this switch to MM (▙) or MC (▬) according to the type of cartridge used on your turntable.

⓲ SIGNAL GND (ground) terminal
Connect the turntable's ground wire here.

> **NOTE:**
> This terminal is used to reduce noise when a turntable, etc., is connected.
> It does not provide complete grounding.

⓳ AC OUTLETS
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.
- SWITCHED (Total capacity: 120 W):
  These outlets are turned ON/OFF when main power switch is turned on/off.

⓴ AC IN connector
Connect the included AC power cord here.
Do not use any other cord than the provided AC power cord.

2 CONNECTIONS

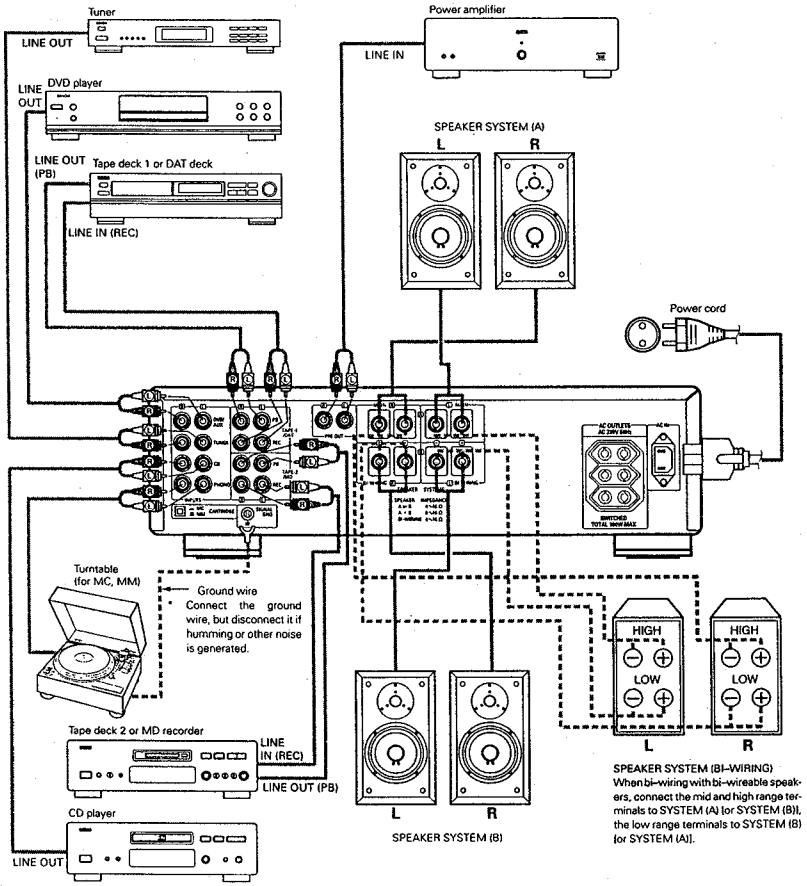
Connecting the speakers
- Speaker impedance
  - When using speaker systems A and B separately, speakers with an impedance of 4 to 16 Ω/ohms can be connected.
  - When bi-wiring with bi-wireable speaker system, speakers with an impedance of 4 to 16 Ω/ohms can be connected.
  - Note that when using two sets of speaker systems together (A+B), using speakers with an impedance other than between 8 to 16 Ω/ohms can result in damage.
    Note that this unit is not equipped with a switch for selecting the speaker system. The A and B speaker output terminals are connected in parallel.
  - The protective circuit may be activated if speakers with other impedances are connected.
- Be sure to connect the cords between the speaker terminals and speaker systems with the same polarities (⊕ to ⊕, ⊖ to ⊖). If not, the central sound will be weak and the position of the different instruments will not be clear, diminishing the stereo effect.
- When connecting the speakers, be sure that the core wires of the speaker cords do not stick out from the terminals and touch other terminals, each other or the rear panel.
- Connecting the speaker cords
  ① Peel off the sheathing from the end of the cord.
  ② Twist the core wires.
  ③ Turn the speaker terminal counterclockwise to loosen it.
  ④ Insert the core wires entirely, then turn the terminal clockwise to tighten it.

CAUTION
Protective Circuit
This set is equipped with a high speed protective circuit. This circuit protects the internal circuitry from damage due to large currents flowing when the speaker terminals are not completely connected or when an output is generated by a short circuit. This protective circuit's operation cuts off the output to the speakers. In such a case, be sure to turn the power to the set off and check the connections to the speakers. Then turn the power on again. After muting for several seconds, the set will operate normally.

> **NOTE:**
> NEVER touch the speaker terminals when the power is on. Doing so could result in electric shocks.

Cautions on Connections

- Do not plug in the power cord until all connections are completed.
- Be sure to connect the left and right channels properly.
- Insert the plugs securely. Incomplete connections can result in noise.
- Use the SWITCHED AC OUTLETS to plug in audio components. Do not use them for hair dryers or other appliances.
- Note that placing the pin plug cords next to power cords or near power transformers may result in humming or other noise.
- The PHONO input terminals have an extremely high sensitivity, so avoid turning up the volume when no pin plug cords are connected. Doing so may result in induction humming (booming) from the speakers. When pin plug cords are not connected, insert the included short-circuit pin plug.



3 OPERATION (Refer to Page 5)

PREPARATION

1. CHECKING CONNECTIONS

- Make sure that all the connections are proper by referring to the rear panel.
- Check the polarity (positive and negative) of connections, and the directivity of stereo separation (right cord to right channel terminal, and left cord to left channel terminal).
- Check the directivity of pin cord connection.

2. SETTING OF EACH KNOB

- Turn the volume control knob ❼ left (↶), to minimum position.
- Set the rotary knob ❸, ❹ and balance control ❻ to center position.
- Set LOUDNESS switch ❺ to "OFF (▁▟)".
- Set SOURCE DIRECT switch ⓾ to "OFF (▁▟)".

After checking the above items, turn on the power, the amplifier is set in the ready mode in a few seconds.

PLAYING A RECORD

1. Set the CARTRIDGE selection switch ⓱ "MC (▁◢)" or "MM (▁▟)".
2. Set the INPUT SELECTOR ❾ to "PHONO".
3. Operate the turntable and play the record.
4. Turn the volume ❼ and tone controls ❸, ❹ and balance control ❻ to yield an appropriate volume and sound quality.

PLAYBACK OF CD PLAYER

1. Set the INPUT SELECTOR ❾ to "CD".
2. Operate the CD player.
3. Turn the volume ❼ and tone controls ❸, ❹ and balance control ❻ to yield an appropriate volume and sound quality.

RECEPTION OF RADIO PROGRAMS

1. Set the INPUT SELECTOR ❾ to "TUNER".
2. Operate the tuner to receive a radio program.
3. Turn the volume ❼ and tone controls ❸, ❹ and balance control ❻ to yield an appropriate volume and sound quality.

CONNECTIONS OF AUDIO EQUIPMENT TO AUX TERMINALS

1. Set the INPUT SELECTOR ❾ to "DVD/AUX" position.
2. Operate the Audio equipment Systems.
3. Turn the volume ❼ and tone controls ❸, ❹ and balance control ❻ to yield an appropriate volume and sound quality.

PLAYBACK WITH TAPE DECK

1. Set the INPUT SELECTOR ❾ to "TAPE-1/DAT" or "TAPE-2/MD".
2. Operate the Tape Deck.
3. Turn the volume ❼ and tone controls ❸, ❹ and balance control ❻ to yield an appropriate volume and sound quality.

RECORDING WITH TAPE DECK

1. Set the REC OUT SELECTOR ❽ to the program source you wish to record.
2. Start the playback of the program source.
3. Start recording with the component connected to "TAPE-1/DAT" or "TAPE-2/MD".

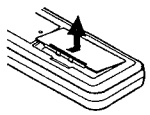
- In the PMA-1500R, the REC OUT signal and the speaker (headphone) signal are output via separate circuits so that knobs and switches related to the tone and volume have no effect whatsoever on the sound that is recorded. Also, since the recording function is selected by the REC OUT SELECTOR ❽, the free program source can be played through the speakers (or headphones) even during recording.
- **MONITORING THE RECORDING**
  A recording in progress can be monitored if a tape deck with three individual heads for recording and playback is used. A tape deck in which a common head is used for both recording and playback cannot be used to monitor recording. When a recording is being made using TAPE-1/DAT, selecting TAPE-1/DAT with the INPUT SELECTOR will engage the RECORDING MONITOR and permit a check of the recording condition.

4 REMOTE CONTROL OPERATION

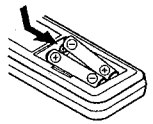
The accessory Remote Control Unit is used to control the amplifier from a convenient distance.

(1) Inserting the Dry Cell Batteries

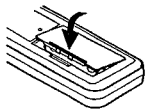
1. Remove the battery cover on the Remote Control Unit.



2. Insert two dry cell batteries as shown in the diagram on the battery supply unit.



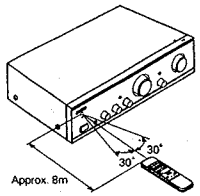
3. Replace the battery cover.



Notes on Battery Usage

- RC-837 uses the size R6P (AA) dry cell batteries.
- The batteries will need to be replaced approximately once a year. This will depend upon how often the Remote Control Unit is used.
- If, in less than a year from the time new batteries were inserted, the Remote Control Unit fails to operate the Amplifier from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment.
- Batteries are prone to damage and leakage. Therefore:
  - Do not mix new batteries with used ones.
  - Do not mix different types of batteries.
  - Do not jumper opposite poles of the batteries, expose them to heat, break them open, nor expose them to open fire.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment wiping thoroughly with a dry cloth. Then insert new batteries.

(2) Directions for use



- Operate the Remote Control Unit while pointing it towards the Remote Control Sensor on the Amplifier as shown in the diagram on the left.
- The Remote Control Unit can be used at distances up to about 8 meters in a straight line from the amplifier. This distance will decrease if there are obstructions blocking the infra-red light transmission or if the Remote Control Unit is not directed straight at the amplifier.

Note on operation

- Do not press the operating buttons on the Amplifier and the Remote Control Unit at the same time. This will cause misoperation.
- Operation of the Remote Control Unit will become less effective or erratic if the infrared Remote Control Sensor on the Amplifier is exposed to strong light or if there are obstructions between the Remote Control Unit and the sensor.
- In case you operate a VCR, TV or other components by remote control, do not operate buttons on two different remote control units at the same time. This will cause misoperation.

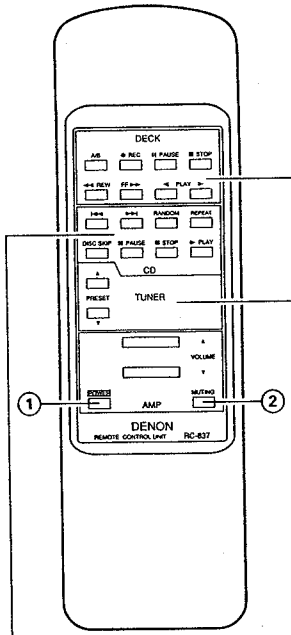
Besides being able to operate the PMA-1500R integrated-amplifier with this Remote Control Unit, you can also operate a DENON cassette deck and CD player from this handy full-system Remote Control Unit.

Remote control section

Full-system Remote Control Unit

The full-system Remote Control Unit operates all major functions of the Amplifier, such as function switching, volume control. But that's not all! The same control pad can also control the major functions of a DENON CD player and cassette deck and tuner when combined with the PMA-1500R to create a remarkably ergonomic and versatile DENON system with all the quality sound reproduction that the devoted audiophile expects.

Remote Control Unit RC-837 supplied with the PMA-1500R



① **POWER button**

This button can be used to turn on and off the power of the amplifier.

However, the power for the amplifier turned on and off if it is in the power standby mode and the power cord is plugged in.

> This button will not function if there is a power failure, if the power cord is not plugged in, or when using an audio timer.

This button can be used when the POWER LED ⓫ is lit.

② **MUTING button**

Pressing this switch will activate the muting condition and no signals will be output to the speakers.

Other buttons

Other buttons are exclusively for the PMA-1500R, and function in the same way as the corresponding buttons on the set.

DECK

PLAY ▶	PLAY button
◀ PLAY (REV)	PLAY (REV) button
■ STOP	STOP button
◀◀ REW	REWIND button
FF ▶▶	FORWARD button
● REC	Refer to the operating instructions of your DENON tape deck.
⏸ PAUSE	
A/B	A/B DECK SELECT button

TUNER

PRESET ▲▼ buttons

Press this button to move up or down among the preset station numbers.

CD

▶ PLAY	PLAY button
■ STOP	STOP button
⏮	Reverse Track Search button
⏭	Forward Track Search button
⏸ PAUSE	PAUSE button

RANDOM REPEAT DISC SKIP	Refer to the operating instructions of your DENON CD player

- The RC-837 Remote Control Unit can control CD players and cassette decks manufactured by DENON.
- Note that operation may not be possible for some models.
- Buttons are conveniently separated into groups, each group controlling one specific component. The groups are AMP, CD , DECK and TUNER.

For details on operating other components, refer to the operating instructions for the CD player and/or cassette deck.

CAUTION:

- If the power is turned off with the Remote Control Unit, the set is switched to the power stand-by state. If you are absent for a long period of time, unplug the power cord.
- Only the POWER LED ⓫ lights orange when in the power stand-by mode.
- You may experience erratic operation of the Remote Control Unit if it is operated in fluorescent light and direct sunlight, in particular if this light strikes the Remote Control Sensor on the Amplifier. However, this is not a malfunction, and if this should happen, simply protect the sensor against such light.

5 TROUBLESHOOTING

Check the following before assuming there is a problem with the set.

1. **Are all connections proper?**
2. **Is the set being operated as described in the operating instructions?**
3. **Are the speakers and input components being operated properly?**

If the set does not seem to be operating properly, check the points listed below. If these points do not apply, the set may be damaged. Turn off the power immediately and contact your store of purchase.

	Symptom	Cause	Measures	Page
Common problems arising when listening to the CD, records, tapes, and FM broadcasts, etc.	POWER LED does not light and no sound is produced when POWER switch is turned on.	• Power cord is not connected.	• Check that the cord is plugged in.	10
	POWER LED lights but no sound is produced.	• Speaker cords not properly connected. • INPUT SELECTOR not set to proper position. • VOLUME control turned down.	• Connect securely. • Set to the proper position. • Set to an appropriate level.	9, 10 8, 11 8, 11
	Sound is not produced from one side only.	• Speaker cords not properly connected. • Input cords not properly connected. • Left/right balance improperly adjusted.	• Connect securely. • Connect securely. • Adjust the BALANCE control.	9, 10 10 8, 11
	Volume level is different when listening to tuner and records.	• Tuner and record outputs different.	• Adjust the tuner output to the turntable's output (if the tuner is equipped with an output control).	—
	Positions of instruments inverted for stereo sources.	• Left and right speakers or input cords inverted.	• Check the left/right connections.	9,10
Problems occurring when playing records.	Booming sound produced when playing records.	• Turntable's ground wire not connected. • Input cords not properly connected to PHONO terminals. • Influence from a TV or VCR near the turntable.	• Connect securely. • Connect securely. • Change the position of installation.	10 10 —
	Howling produced when volume is turned up while playing records.	• Turntable and speaker systems are too close. • Floor is soft and vibrates easily.	• Move speaker systems as far away as possible. • Use cushions to absorb the vibrations transmitted from the floor to the speakers. If the turntable does not include insulators, use audio insulators, available in stores.	— —
	Sound is distorted.	• Stylus pressure is too light. • Dirt on tip of stylus. • Defective cartridge.	• Apply proper pressure. • Check the tip of the stylus. • Replace the cartridge.	— — —
Remote control unit	This unit does not operate properly when remote control unit is used.	• Batteries dead. • Remote control unit too far from this unit. • Obstacle between this unit and remote control unit. • Different button is being pressed. • ⊕ and ⊖ ends of battery inserted in reverse.	• Replace with new batteries. • Move closer. • Remove obstacle. • Press the proper button. • Insert batteries properly.	12 12 12 13 12

6 SPECIFICATIONS

- **POWER AMPLIFIER SECTION**
  - **Rated Output Power:**
    - Both channel driven (8 Ω/ohms Load) 20 Hz to 20 kHz, T.H.D. 0.07%: 70 W + 70 W
    - (4 Ω/ohms Load) DIN, 1 kHz, T.H.D. 0.7%: 140 W + 140 W
  - **Total Harmonic Distortion:** (–3 dB at rated output, 8 Ω/ohms) (1 kHz): 0.01%

- **PRE AMPLIFIER SECTION**
  - **Rated Output:** (Recout Terminal): 150 mV
  - **Input Sensitivity / Input Impedance:** The value in parentheses ( ) refers to the input impedance when SOURCE DIRECT is ON.
    - PHONO: MM: 2.5 m / 47 kΩ/ohms; MC: 200 μV / 100 Ω/ohms
    - CD, TUNER, DVD/AUX, TAPE–1/DAT, TAPE–2/MD: 150 mV / 47 kΩ/ohms (150 mV / 13 kΩ/ohms)
  - **RIAA Deviation:**
    - PHONO: 20 Hz ~ 20 kHz ±0.5 dB(MM); 30 Hz ~ 20 kHz ±0.5 dB(MC)

- **OVERALL CHARACTERISTICS**
  - **SN Ratio (IHF A Network):** PHONO
    - MM: 91 dB (at 5 mV input)
    - (input terminals short-circuited) MC: 76 dB (at 0.5 mV input)
    - SOURCE–DIRECT: ON: CD, TUNER, DVD/AUX, TAPE–1/DAT, TAPE–2/MD: 110 dB
  - **Tone Control Adjustable Range:**
    - BASS: 100 Hz ±8 dB
    - TREBLE: 10 kHz ±8 dB
    - LOUDNESS: 50 Hz +10 dB, 10 kHz +6 dB

- **OTHERS**
  - **Power Supply:** AC 230 V, 50 Hz (Europe & Asia & Hong Kong Models); AC 120 V, 60 Hz (U.S.A., Canada & Taiwan R.O.C. Models)
  - **AC Outlets:**
    - Switched × 3: 120 W (U.S.A., Canada & Taiwan R.O.C. Models); 100 W (Europe & Asia & Hong Kong Models)
  - **Power Consumption:** 305 W (IEC) (Europe & Asia & Hong Kong Models); 4.4 A (U.S.A., Canada & Taiwan R.O.C. Models)
  - **Dimensions:** 434 (W) × 134 (H) × 407 (D) mm (17–3/32" × 5–9/32" × 16–1/32")
  - **Net Weight:** 14.0 kg (30 lbs 14 oz)

- **REMOTE CONTROL UNIT (RC–837)**
  - **Remote control system:** Infrared pulse system
  - **Power supply:** 3V DC, Two size R6P ("AA") dry cell batteries
  - **External dimensions:** 55 (W) × 194 (H) × 18 (D) mm (2–23/64" × 7–41/64" × 45/64")
  - **Weight:** 100 g (Approx. 3.5 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers.
(W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

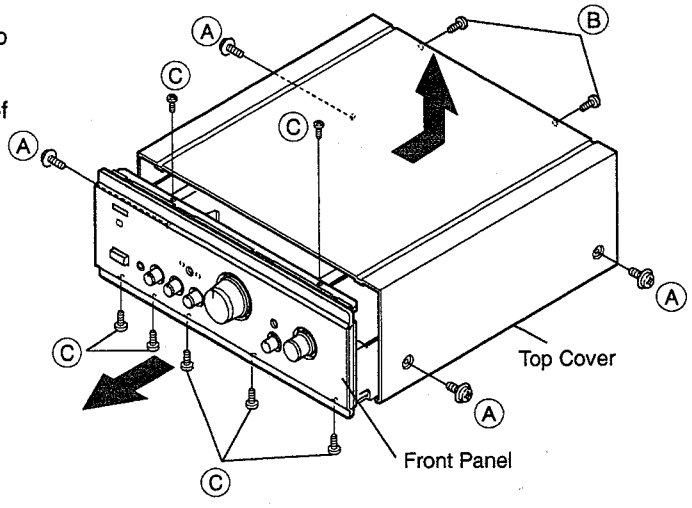
DISASSEMBLY

(Follow in the reverse order when reassembling)

1. Top Cover and Front Panel

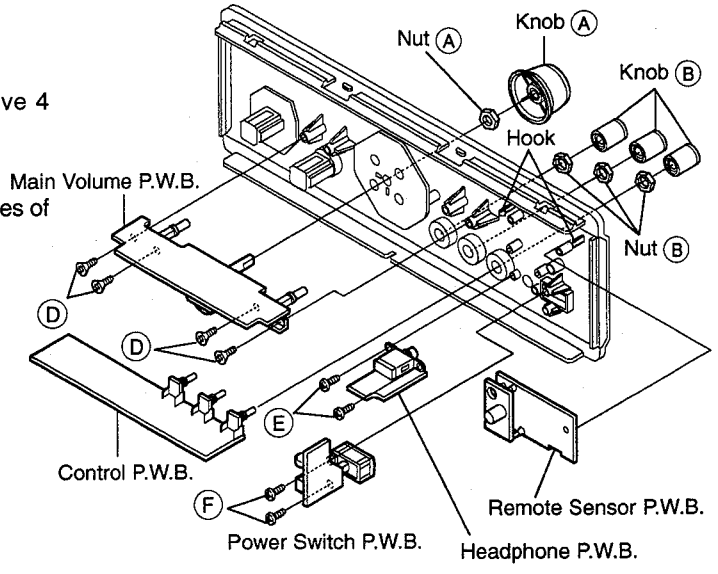
(1) Remove 4 screws Ⓐ, 2 screws Ⓑ and detach the Top Cover in the arrow direction.

(2) Remove 7 screws Ⓒ at the top and bottom edges of the Front Panel, then detach it in the arrow direction.



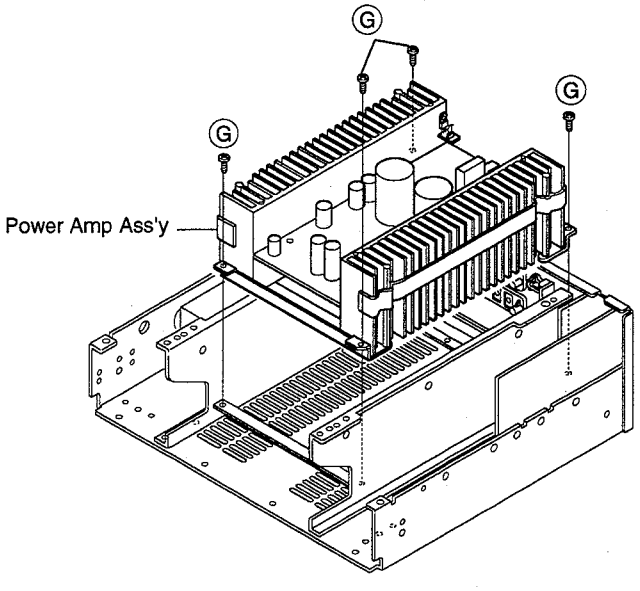
2. Each Front Panel P.W.Board

- Main Volume P.W.B.
  (1) Pull out Knob Ⓐ, unfasten Nut Ⓐ and remove 4 screws Ⓓ.
- Control P.W.B.
  (1) Pull out 3 pieces of Knob Ⓑ and unfasten 3 pieces of Nut Ⓑ.
- Headphone P.W.B.
  (1) Remove 2 screws Ⓔ.
- Power Switch P.W.B.
  (1) Remove 2 screws Ⓕ.
- Remote Sensor P.W.B.
  (1) Release 2 Hooks.



3. Power Amp Ass'y

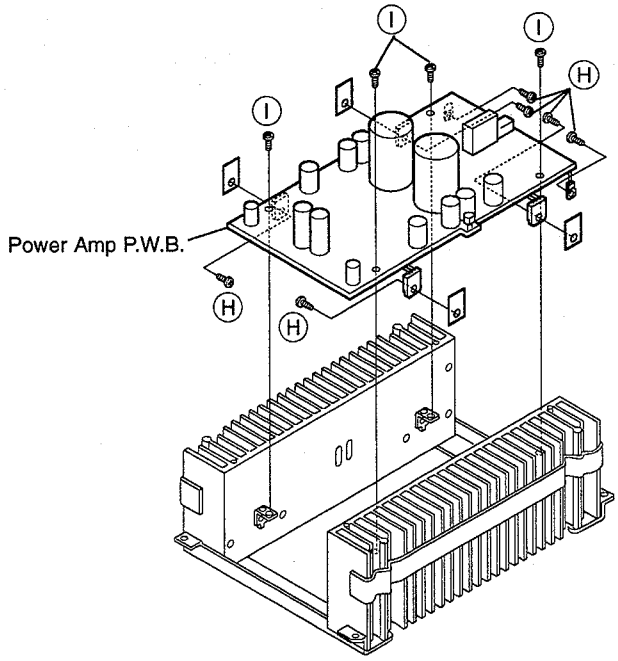
(1) Remove 4 screws Ⓖ and detach the Power Amp Ass'y.



4. Power Amp P.W.B.

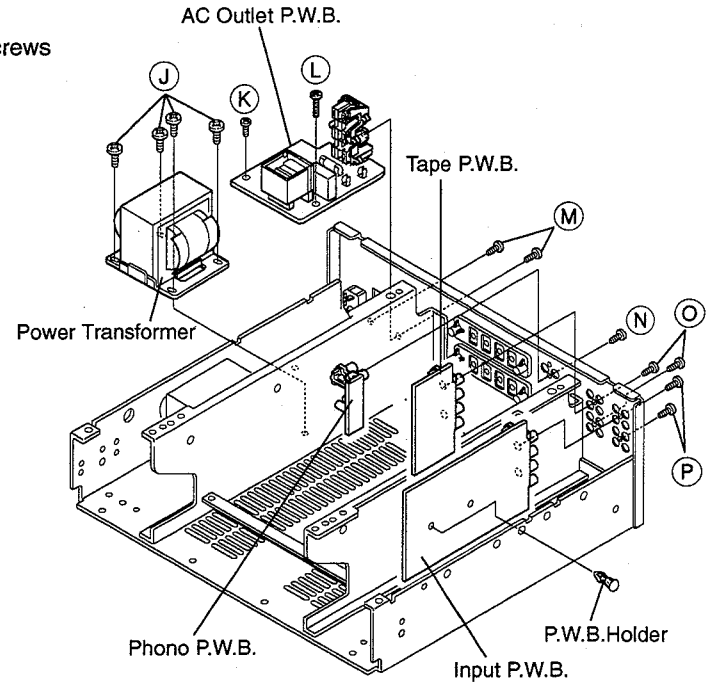
(1) Remove 6 screws Ⓗ from the bottom side of the Power Amp P.W.B.

(2) Remove 4 screws Ⓘ from the top side of the Power Amp P.W.B..

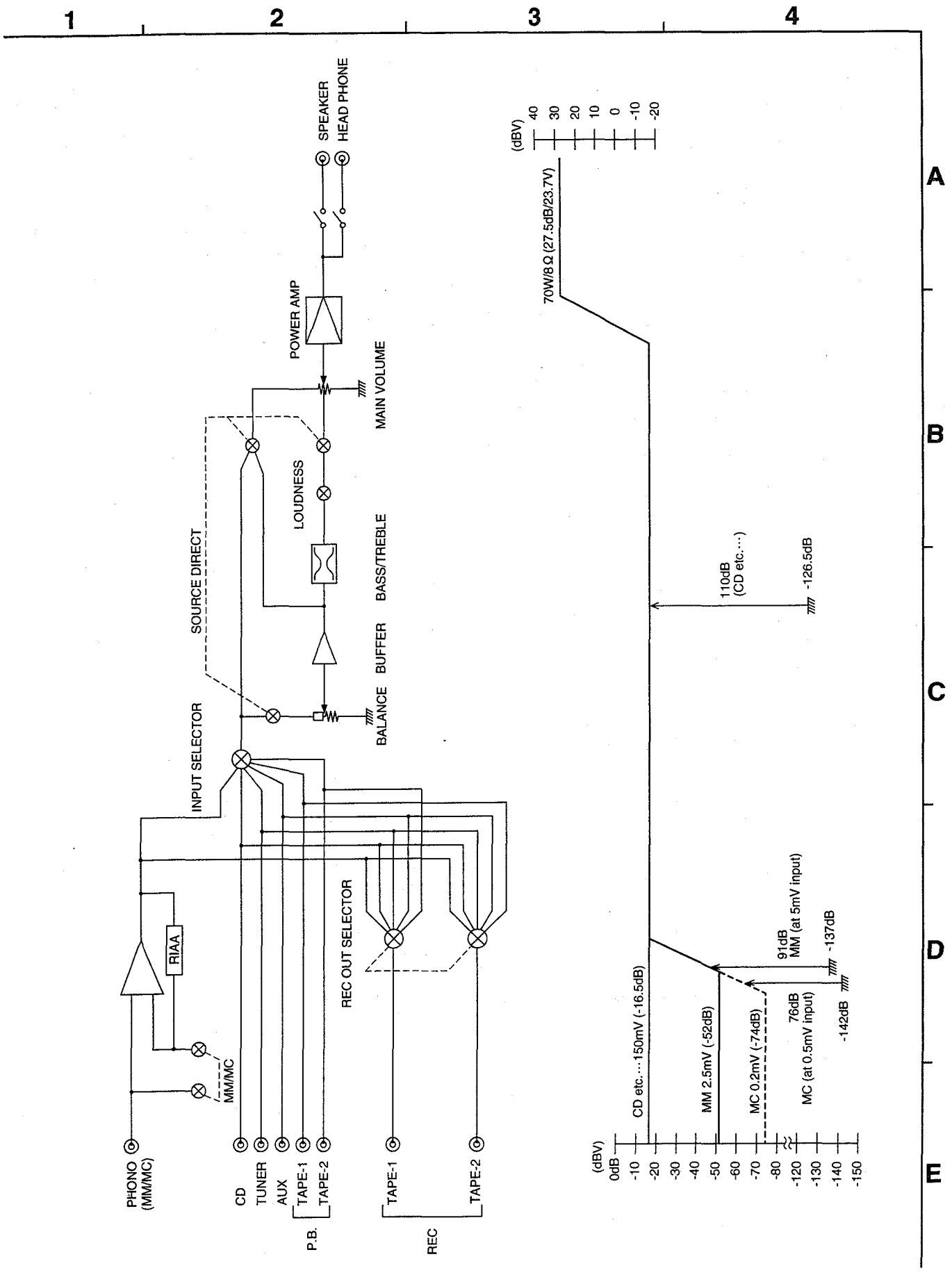


5. Each Rear Panel P.W.B.

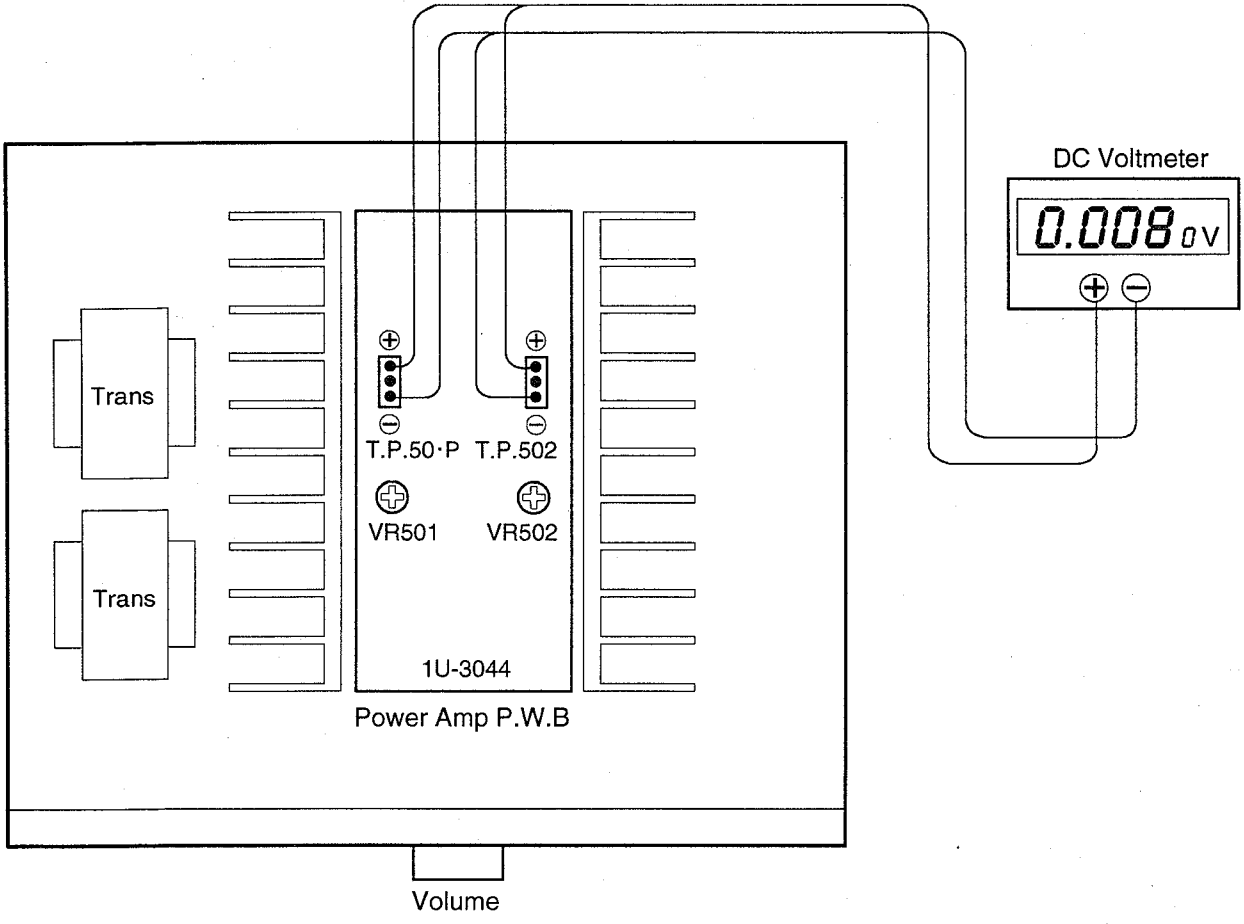
- AC Outlet P.W.B.
  (1) Remove Power Transformer after removing 4 screws Ⓙ.
  (2) Remove 2 screws Ⓚ, Ⓛ.
  (3) Remove 2 screws Ⓜ.
- Phono P.W.B.
  (1) Remove 1 screw Ⓝ.
- Tape P.W.B.
  (1) Remove 2 screws Ⓞ.
- Input P.W.B.
  (1) Remove 2 screws Ⓟ.
  (2) Pull out P.W.B. Holder.



BLOCK AND LEVEL DIAGRAM



ADJUSTMENT



IDLING CURRENT

● Setup

1. Place the unit at an ordinary position avoiding direct air flow from an air-conditioner or fan. Do the adjustment at a temperature between 15 °C (59 °F) and 30 °C (86 °F).
2. Set control as follows.

POWER switch	→	OFF (■)
VOLUME control	→	fully counterclockwise (↶ min.)
SPEAKER terminals	→	open: do not connect the speakers, dummy load etc.

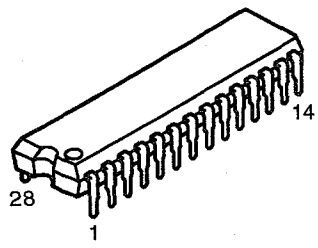
● Adjustment

1. Remove top cover. And then connect DC voltmeter to the test points TP501 and TP502 of POWER AMP P.W.B. (1U-3044).
2. Connect power cord to AC230V (218 ~ 242V) (Europe & Asia Models) or AC120V (114~126V) (U.S.A,Canada & TAIWAN R.O.C Models) wall outlet, and turn POWER switch "ON" (▬).
3. Right after power on, adjust VR501 and VR502 so that the DC voltmeter reads 10 ±2mV.
4. Then after 2 minutes warmup adjust VR501 and VR502 so that the DC voltmeter reads 10 ±1mV.
5. And after 10 minutes warmup adjust VR501 and VR502 so that the DC voltmeter reads 10 ±0.5mV.

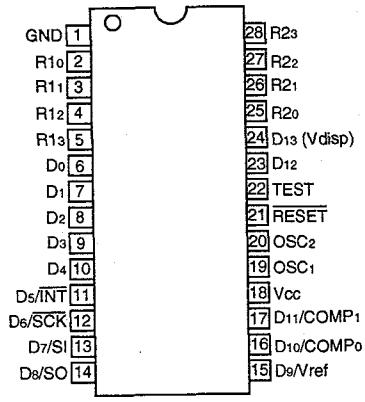
SEMICONDUCTORS

● IC's

HD404222 (IC903)



Large current terminals	High dielectric terminals
R1, R2, D12, D13	—



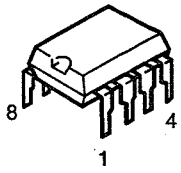
HD404222 (IC901) Terminal Function

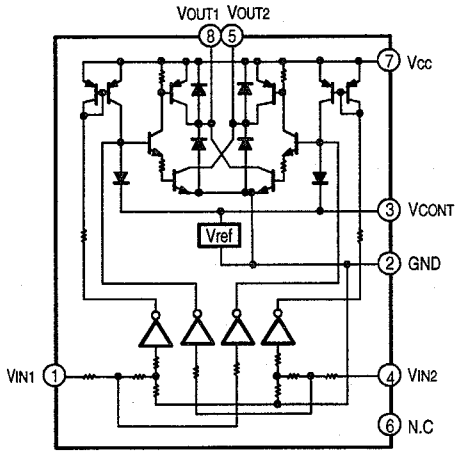
Pin No.	Port Name	Symbol	Typ	Opt	I/O	Res	Ini	Act	Det	Function
1	GND	GND	—	—	—	—	—	—	—	Ground
2	R10	PHONO	B	IU	O	HZ	H	L	—	Function display LED drive output
3	R11	CD	B	IU	O	HZ	H	L	—	Function display LED drive output
4	R12	TUNER	B	IU	O	HZ	H	L	—	Function display LED drive output
5	R13	AUX	B	IU	O	HZ	H	L	—	Function display LED drive output
6	D0	VOLUME UP	B	IU	O	HZ	L	H	—	Volume drive output
7	D1	VOLUME DOWN	B	IU	O	HZ	L	H	—	Volume drive output
8	D2	NC	B	IU	I	HZ	L	—	—	Connects to GND
9	D3	B-DOWN	B	IU	I	HZ	H	L	Lv	Break down detection input
10	D4	PROTECTION	B	IU	I	HZ	H	L	Lv	Protection detection input
11	$\overline{INT}$	REMOCON	B	IU	I	HZ	H	L	Ed	Remote control signal input
12	D8	CK	B	IU	O	HZ	L	H	—	Analog function switch control output (clock)
13	D7	ST	B	IU	O	HZ	L	H	—	Analog function switch control output (chip select)
14	D6	DATA	B	IU	O	HZ	L	H	—	Analog function switch control output (data)
15	Vref	VREF	—	—	—	—	—	—	—	Comparator reference voltage input
16	D10	KEY IN	B	IU	I	HZ	—	—	Alg	Button input (analog)
17	D11	NC	B	IU	I	HZ	L	—	—	Connects to GND
18	Vcc	Vcc	—	—	—	—	—	—	—	Power supply
19	OSC1	OSC1	—	—	I	—	—	—	—	Xtal input
20	OSC2	OSC2	—	—	O	—	—	—	—	Xtal output
21	$\overline{RESET}$	$\overline{RESET}$	—	EU	I	L	H	H	—	Reset input
22	TEST	—	—	—	I	—	—	—	—	
23	D12	POWER ON/OFF	B	IU	O	HZ	H	L	—	Power ON/OFF switching output ("L"= Power on)
24	D13	MUTING	B	IU	O	HZ	H	H	—	Mute output ("H"= Mute on)
25	R20	NC	B	IU	O	HZ	L	—	—	Connects to GND
26	R21	MUTE/STANDBY	B	IU	O	HZ	H	L	—	Mute/Standby display LED drive output
27	R22	TAPE2	B	IU	O	HZ	H	L	—	Function display LED drive output
28	R23	TAPE1	B	IU	O	HZ	H	L	—	Function display LED drive output

Abbreviations;

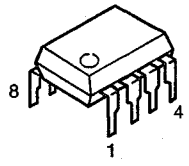
Typ (Type) : B=NMOS open drain.
Opt (Option) : IU=internal pull up, EU=external pull up.
Port state : Res=reset, Ini=standby, Act=active.
Det : Lv=level, Ed=edge, Alg=analog.
I/O : Input or output of port "I"= Input port, "O"= Output port.
Res : State at reset
"H"= Outputs high level at reset, "L"= Outputs low level at reset, "HZ"= Becomes high impedance mode at reset.
Opt : Pull up or pull down selection information "*U"= Pull up, "*D"= Pull down.
Det : Indicates judging state of input port "Lv"= Level detection, "Ed"= Edge detection.
Ini : Initial state of in/out port "H"= High level, "L"= Low level.
Act : Indicates port state in operation.

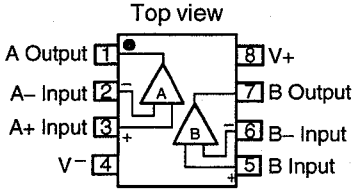
LB1639 (IC904)



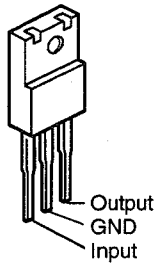


NJM2068DDC (IC301)
BA15218 (IC401)

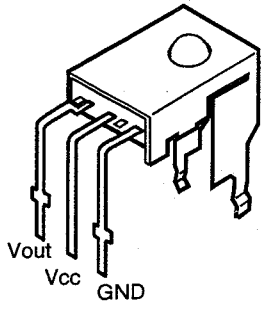


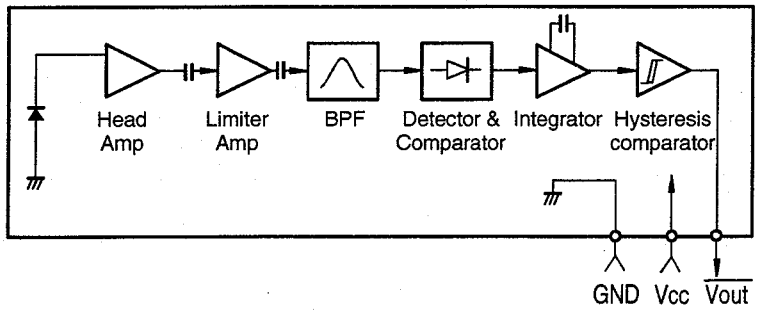


NJM7805FA (IC902)



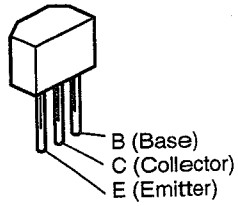
GP1U271X (Remote Control Sensor) (IC901)



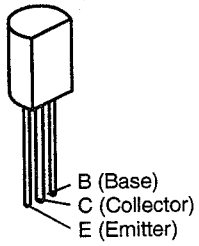


● TRANSISTORS

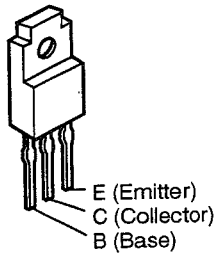
2SA1048 (GR)
2SC2458 (BL)



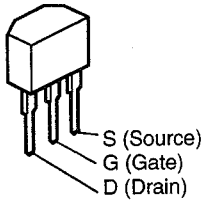
2SA988 (E/F)
2SC1815 (Y)
2SC1841 (E/F)



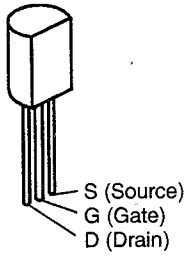
2SB1186A (D)
2SD1763A (D)



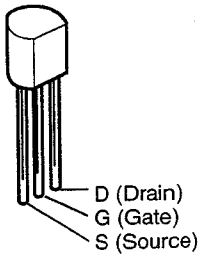
2SK184C (GR)/(BL)



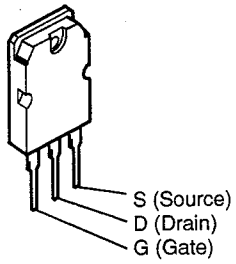
2SK369 (BL)/(GR)-C



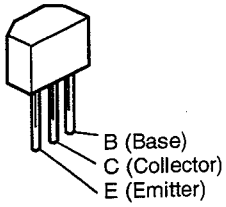
2SK373 (Y)



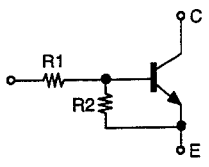
2SK851



DTC114ES
RN1241

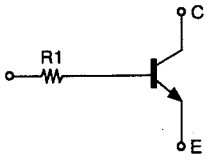


DTC114ES



	R1	R2
DTC114ES	10 kohm	10 kohm

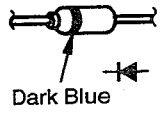
RN1241



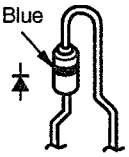
	R1
RN1241	5.6 kohm

● DIODE & LED

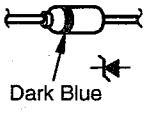
1SS252



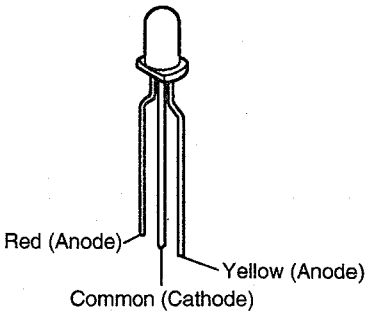
1SR35-200A



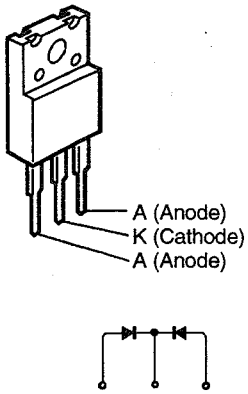
HZS5A-1
HZS12A-1
HZS6B-1
HZS24-1
MTZJ7.5C
MTZJ18A



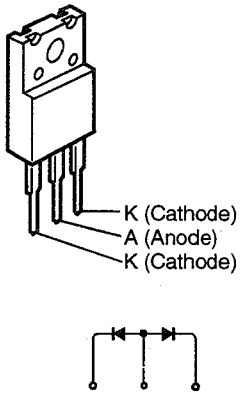
SML16751 (LED)



FMG-22S

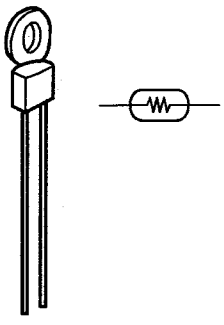


FMG-22R

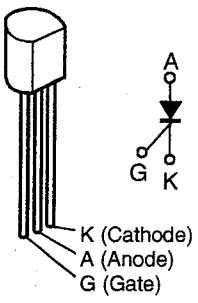


● POSISTOR

PTH9M04BC222TS2F333 (P501)



SFOR3G42 (Thyristor)
(SC601)

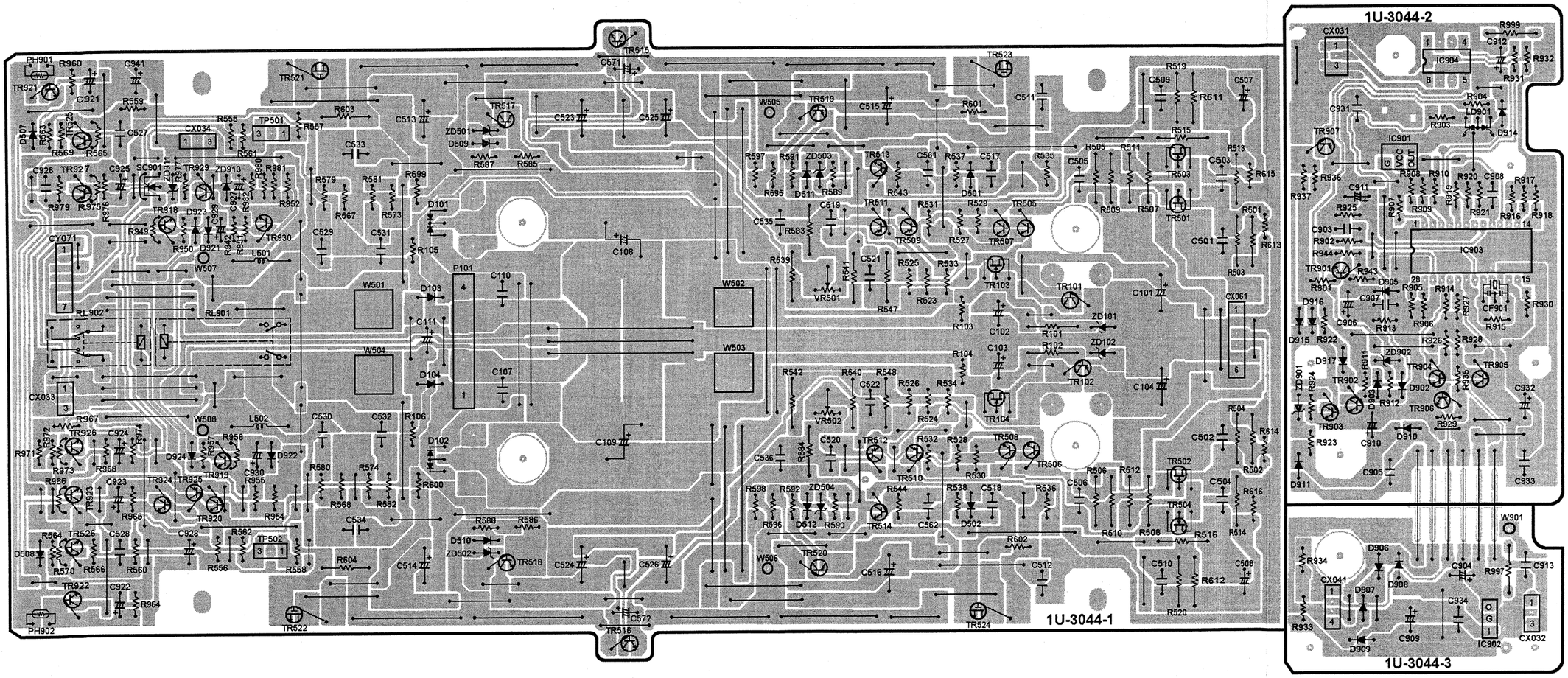


PRINTED WIRING BOARD

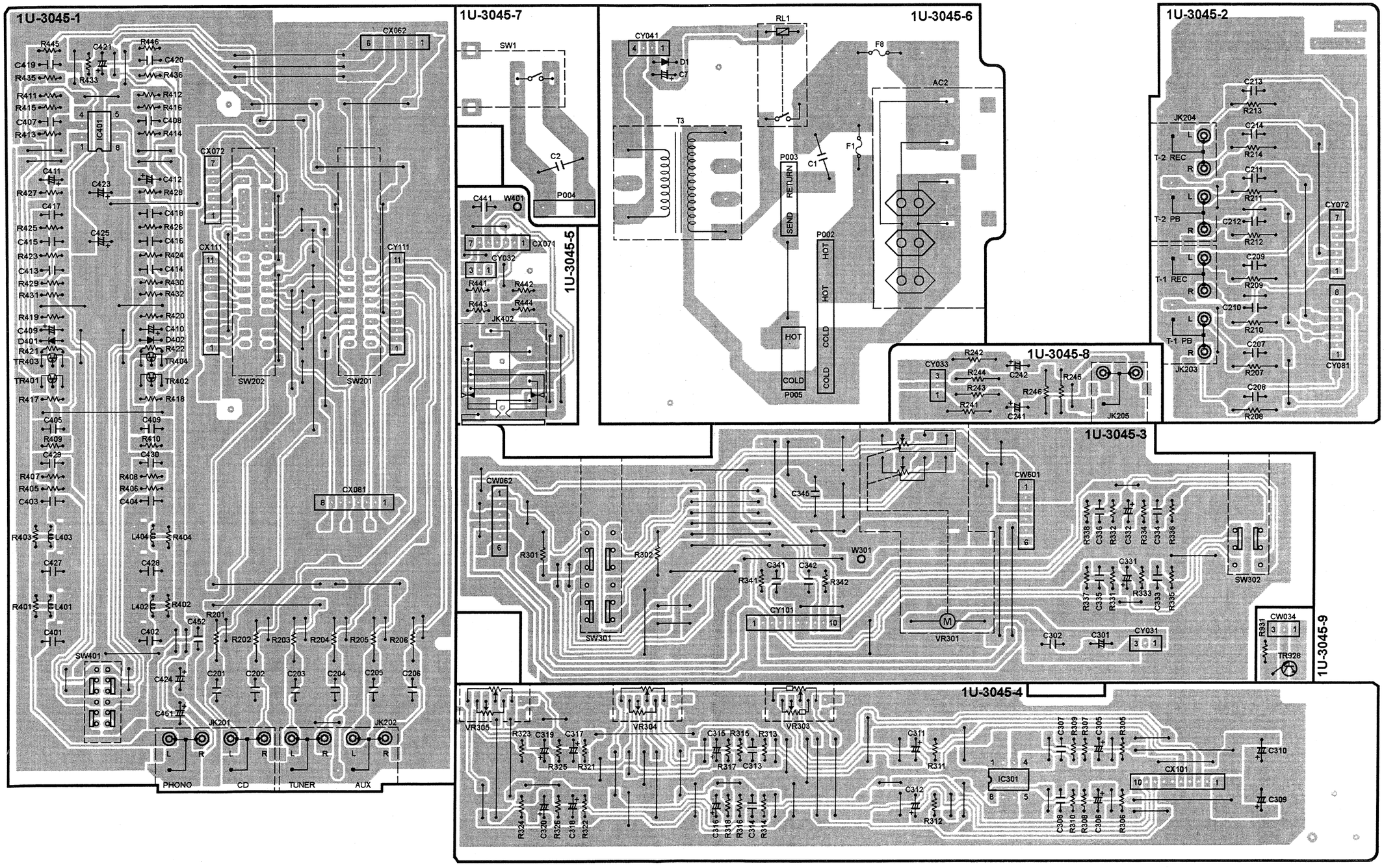
1 2 3 4 5 6 7 8

A B C D E

1U-3044B MAIN UNIT



1U-3045B&C PHONO UNIT



NOTE FOR PARTS LIST

- Part indicated with the mark "⊙" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

*** Resistance**

1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number.
2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: ohm

● Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For change and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

*** Capacity (electrolyte only)**

2 2 2 ⇒ 2200μF
Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 R 2 ⇒ 2.2μF
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: μF.

*** Capacity (except electrolyte)**

2 2 2 ⇒ 2200pF=0.0022μF
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 2 1 ⇒ 220pF
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

PARTS LIST OF P.W.BOARD

1U-3044B MAIN UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC901	499 0290 007	Remocon sensor GP1U271X	
IC902	263 0809 006	IC NJM7805FA(S)	
IC903	262 2168 001	IC HD404222	
IC904	263 0476 002	IC LB1639	
TR101	274 0158 003	Transistor 2SD1763A(D)	
TR102	272 0115 008	Transistor 2SB1186A(D)	
TR103,104	275 0042 905	FET 2SK373(Y)	
TR501~504	275 0055 015	FET 2SK184C (GR)/(BL)	
TR505~508	273 0235 923	Transistor 2SC1841(E/F)	
TR509~512	271 0202 002	Transistor 2SA1360 (O/Y)	
TR513,514	273 0333 003	Transistor 2SC3423(O/Y)	
TR515,516	273 0198 002	Transistor 2SC1815(Y)	
TR517,518	274 0158 003	Transistor 2SD1763A(D)	
TR519,520	272 0115 008	Transistor 2SB1186A(D)	
TR525,526	273 0235 923	Transistor 2SC1841(E/F)	
TR901	273 0303 910	Transistor 2SC1740S(S)	
TR902	269 0020 906	Transistor DTC114ES(10K-10K)	
TR903	273 0317 906	Transistor 2SC2458(BL)	
TR904,905	269 0020 906	Transistor DTC114ES(10K-10K)	
TR906	273 0317 906	Transistor 2SC2458(BL)	
TR907	271 0191 906	Transistor 2SA1048(GR)	
TR918,919	273 0317 906	Transistor 2SC2458(BL)	
TR920	269 0107 900	Transistor RN1241(A/B)	
TR921~924	273 0317 906	Transistor 2SC2458(BL)	
TR925	271 0191 906	Transistor 2SA1048(GR)	
TR926	273 0317 906	Transistor 2SC2458(BL)	
TR927	271 0131 924	Transistor 2SA988(E/F)	
TR929,930	273 0317 906	Transistor 2SC2458(BL)	
D101	276 0681 000	Diode FMG-22S	
D102	276 0682 009	Diode FMG-22R	
D103,104	276 0553 905	Diode 1SR35-200A	
D501,502	276 0616 907	Diode 1SS252	
D507~512	276 0616 907	Diode 1SS252	
D902,903	276 0616 907	Diode 1SS252	
D905	276 0616 907	Diode 1SS252	
D906~911	276 0553 905	Diode 1SR35-200A	
D914~917	276 0616 907	Diode 1SS252	
D921~924	276 0616 907	Diode 1SS252	
ZD101,102	276 0645 907	Zener diode MTZJ18A	18V
ZD501,502	276 0473 904	Zener diode HZS12A-1	12V
ZD503,504	276 0458 903	Zener diode HZS5A-1	5V
ZD901	276 0635 904	Zener diode MTZJ7.5C	
ZD902	276 0634 905	Zener diode MTZJ3.3A	3.3V
ZD911	276 0635 904	Zener diode MTZJ7.5C	
ZD913	276 0481 909	Zener diode HZS18-1TD	
LD901	393 9563 903	LED SML16751WN	
SC901	279 0038 908	Thyristor SF0R3G42	
RESISTORS GROUP			
R101,102	241 2422 944	Carbon film 1 kohm 1/4W	RD14B2E102J(PSNB)
R103,104	241 2387 908	Carbon film 1 ohm 1/4W(NB)	RD14B2E010JNBS
R501,502	241 2429 963	Carbon film 1 Mohm 1/4W	RD14B2E105J(PSNB)
R503,504	245 2044 900	Metal film 100 ohm 1/4W	RN14K2E101G
R505~508	241 2424 900	Carbon film 4.7 kohm 1/4W	RD14B2E472J(PSNB)
R509,510	241 2421 929	Carbon film 330 ohm 1/4W	RD14B2E331J(PSNB)
R511,512	241 2424 968	Carbon film 8.2 kohm 1/4W	RD14B2E822J(PSNB)
R513,514	245 2048 906	Metal film 150 ohm 1/4W	RN14K2E151G
R515,516	241 2429 963	Carbon film 1 Mohm 1/4W	RD14B2E105J(PSNB)
R519,520	241 2426 966	Carbon film 56 kohm 1/4W	RD14B2E563J(PSNB)
R523~526	241 2315 983	Carbon film 330 ohm 1/4W	RD14B2E331GFRS
R527~530	241 2377 947	Carbon film 100 ohm 1/4W(NB)	RD14B2E101JNBS
R531,532	241 2380 918	Carbon film 1.3 kohm 1/4W(NB)	RD14B2E132JNBS
R533,534	241 2377 921	Carbon film 82 ohm 1/4W(NB)	RD14B2E820JNBS
R535,536	244 2068 022	Metal oxide 12 kohm 1W	RS14B3A123JNBS (RSFSV)
R537,538	241 2371 930	Carbon film 160 ohm 1/4W	RD14B2E161GFRS
R539,540	241 2424 926	Carbon film 5.6 kohm 1/4W	RD14B2E562J(PSNB)
R541,542	241 2422 944	Carbon film 1 kohm 1/4W	RD14B2E102J(PSNB)
R543,544	241 2371 930	Carbon film 160 ohm 1/4W	RD14B2E161GFRS
R547,548	241 2429 963	Carbon film 1 Mohm 1/4W	RD14B2E105J(PSNB)
R559,560	241 2425 967	Carbon film 22 kohm 1/4W	RD14B2E223J(PSNB)
R563,564	241 2428 906	Carbon film 220 kohm 1/4W	RD14B2E224J(PSNB)
R565,566	241 2426 908	Carbon film 33 kohm 1/4W	RD14B2E333J(PSNB)
R573,574	244 2058 045	Metal oxide 4.7 ohm 1W	RS14B3A4R7JNBS (RSFSV)
R579,580	244 2058 074	Metal oxide 22 ohm 1W	RS14B3A220JNBS (RSFSV)
R581,582	244 2058 045	Metal oxide 4.7 ohm 1W	RS14B3A4R7JNBS (RSFSV)
R583,584	241 2423 969	Carbon film 3.3 kohm 1/4W	RD14B2E332J (PSNB)
R585,586	244 2050 933	Metal oxide 180 ohm 1W	RS14B3A181 JNBS(S)
R587,588	244 2052 960	Metal oxide 220 ohm 1W	RS14B3A221 JNBS(S)
R589~592	244 2051 961	Metal oxide 100 ohm 1W	RS14B3A101JNBS(S)
R595,596	244 2050 933	Metal oxide 180 ohm 1W	RS14B3A181JNBS(S)
R597,598	244 2052 960	Metal oxide 220 ohm 1W	RS14B3A221JNBS(S)
R599	241 2376 964	Carbon film 47 ohm 1/4W(NB)	RD14B2E470JNBS

Ref. No.	Part No.	Part Name	Remarks
R600~602	241 2376 964	Carbon film 47 ohm 1/4W(NB)	RD14B2E470JNBS
R603,604	243 2061 000	Winding 0.1 ohm 3W	RW99=3F0R1K
R611,612	241 2426 966	Carbon film 56 kohm 1/4W	RD14B2E563J (PSNB)
R933,934	244 2064 974	Metal oxide 33 ohm 1W	RS14B3A330JNBS(S)
R954,955	244 2043 953	Metal oxide 470 ohm 1W	RS14B3A471JNBS(S)
R995~997	241 2429 963	Carbon film 1 Mohm 1/4W	RD14B2E105J(PSNB)
R999	241 2429 963	Carbon film 1 Mohm 1/4W	RD14B2E105J(PSNB)
VR501,502	211 6075 024	Semi fixed resistor 4.7 kohm	V06PB472 (CERMET)
CAPACITORS GROUP			
C101	254 4356 755	Electrolytic 220μF/50V	CE04W1H221MC (ARS)
C102,103	254 4356 797	Electrolytic 10μF/50V	CE04W1H100MC (ARS)
C104	254 4356 755	Electrolytic 220μF/50V	CE04W1H221MC (ARS)
C107	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C108,109	254 6212 004	Electrolytic 8200μF/71V	CE68W==822MC(DL)
C110	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C111	254 4263 916	Electrolytic 0.22μF/100V	CE04W2AR22M
C501,502	255 4235 918	Polypropylene film 100 pF/100V	CQ93P2A101J(NH)
C503,504	255 4235 918	Polypropylene film 100 pF/100V	CQ93P2A101J(NH)
C505,506	255 4232 982	Polypropylene film 2200 pF/100V	CQ93P2A222J(NH)
C507,508	254 4356 739	Electrolytic 47μF/50V	CE04W1H470MC (ARS)
C509,510	255 4237 929	Polypropylene film 56 pF/100V	CQ93P2A560J(NH)
C511,512	255 4235 918	Polypropylene film 100 pF/100V	CQ93P2A101J(NH)
C513~516	254 4373 000	Electrolytic 100μF/100V	CE04W2A101M (ARS)
C517,518	255 4235 918	Polypropylene film 100 pF/100V	CQ93P2A101J(NH)
C519,520	255 4242 901	Polypropylene film 15 pF/100V	CQ93P2A150J(NH)
C521,522	255 4235 918	Polypropylene film 100 pF/100V	CQ93P2A101J(NH)
C525,526	254 4356 755	Electrolytic 220μF/50V	CE04W1H221MC (ARS)
C527,528	255 4232 937	Polypropylene film 1000 pF/100V	CQ93P2A102J(NH)
C529,530	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C531,532	255 4235 057	Polypropylene film 0.1μF/100V	CQ93P2A104J(NH)
C533,534	255 4232 937	Polypropylene film 1000 pF/100V	CQ93P2A102J(NH)
C535,536	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C561,562	255 4232 937	Polypropylene film 1000 pF/100V	CQ93P2A102J(NH)
C571,572	254 4461 718	Electrolytic 4.7μF/50V	CE04W1H4R7MC (ARS)
C903	256 1034 979	Metalized 0.12μF/50V	CF93A1H124J
C904	254 4356 797	Electrolytic 10μF/50V	CE04W1H100MC (ARS)
C905	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C906	254 4305 984	Electrolytic 2.2μF/50V	CE04W1H2R2M (SRE)

Ref. No.	Part No.	Part Name	Remarks
C907	255 1265 936	Mylar film 0.01μF/50V	CQ93M1H103J(B)
C908	253 9039 906	Ceramic 0.1μF/25V	CK45=1E104Z(DD-3)
C909	254 4375 707	Electrolytic 1000μF/25V	CE04W1E102MC(ASF)
C910	254 4305 926	Electrolytic 0.22μF/50V	CE04W1HR22M (SRE)
C911	254 4305 942	Electrolytic 0.47μF/50V	CE04W1HR47M (SRE)
C912	254 4299 906	Electrolytic 10μF/16V	CE04W1C100M (SRE)
C913	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C921,922	254 4368 934	Electrolytic 100μF/25V	CE04W1E101M (ASF)
C923	254 4480 906	Electrolytic 330μF/6.3V	CE04W0J331M(ASF)
C924	254 4368 934	Electrolytic 100μF/25V	CE04W1E101M (ASF)
C925	254 4313 989	Electrolytic 33μF/50V	CE04W1H330M (ASF)
C926	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C927,928	254 4313 934	Electrolytic 47μF/50V	CE04W1H470M (ASF)
C929,930	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M (ASF)
C933	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)
C941	254 4313 934	Electrolytic 47μF/50V	CE04W1H470M (ASF)

OTHER PARTS GROUP				Q'ty
CF901	399 0191 903	Ceramic 4.00 MHz	CST4.00MGW-TF01	1
CX031	205 0355 033	3P KR connector base (L)		1
CX032,033	205 0343 032	3P connector base (KR-PH)		2
CX034	205 0233 032	3 P EH connector base		1
CX041	205 0343 045	4P connector base(KR-PH)		1
CX061	205 0233 061	6P EH connector base		1
CY071	205 0343 074	7P connector base(KR-PH)		1
P101	205 0087 042	4P wrapping terminal		1
RL901	214 0129 001	Relay (DH2TU)		1
RL902	214 0127 003	Relay (RY-12W)		1
TP501,502	205 0190 036	3P NH connector base		2
W501~504	205 0864 003	M3 screw terminal		4
W505,506	203 0615 094	1P SIN connector cord		2
W901	203 0501 027	1P SIN con. Ass'y		1
	415 0309 042	P.V.C. tuve (L=05)		4
	417 0476 007	Radiator		2
	417 0476 036	Radiator		2
	473 7002 021	Screw 3 8 CBTS(S)-B		4

1U-3045B&C PHONO UNIT ASS'Y

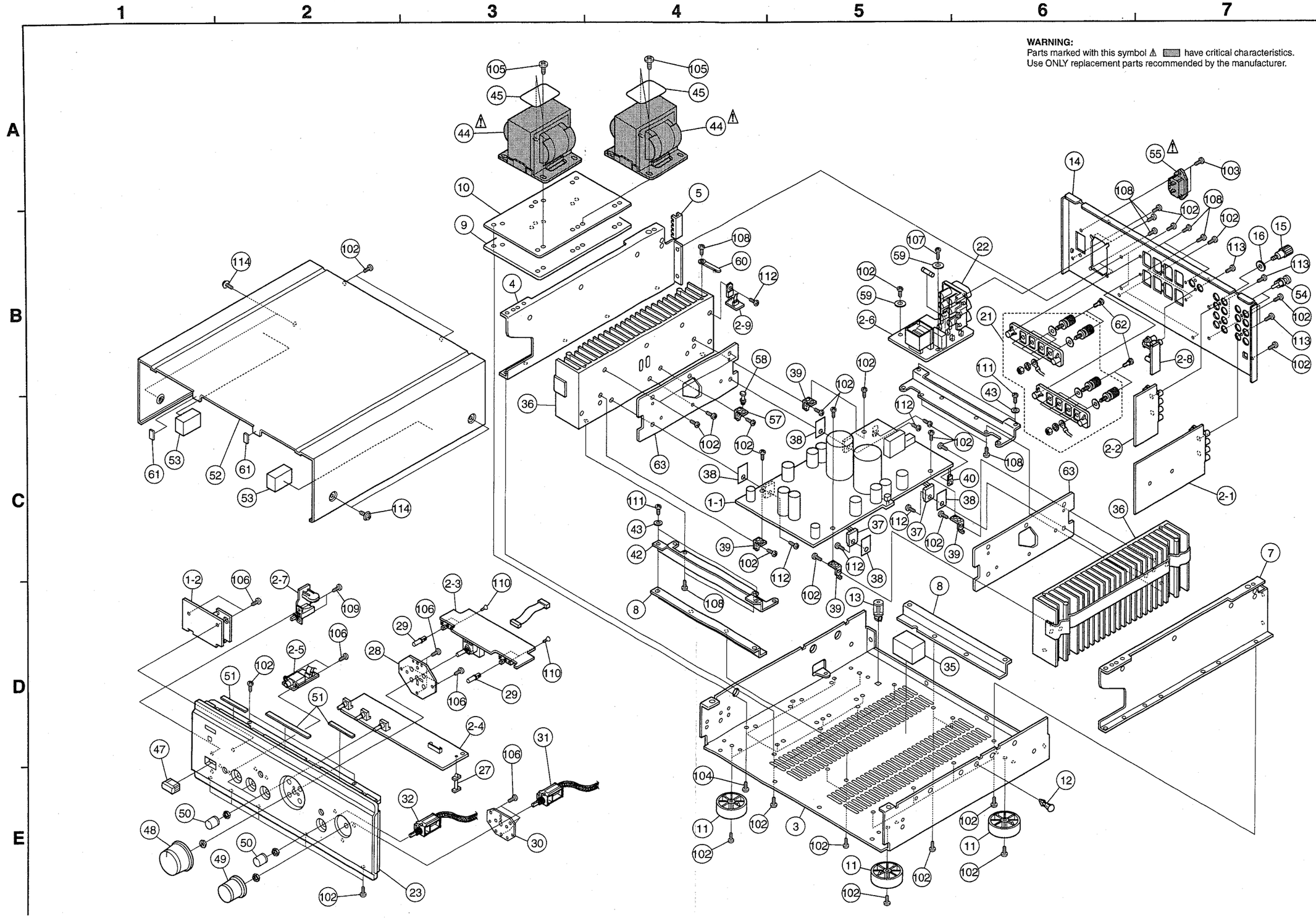
Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC301	263 0609 002	IC NJM2068DDC	
IC401	263 0565 007	IC BA15218	
TR401~404	275 0038 045	FET 2SK369 (BL)/(GR)	
TR928	274 0158 003	Transistor 2SD1763A(D)	
D001	276 0616 907	Diode 1SS252	
D401,402	276 0616 907	Diode 1SS252	
RESISTORS GROUP			
R241,242	241 2425 909	Carbon film 12 kohm 1/4W	RD14B2E123J (PSNB)
R243,244	241 2421 961	Carbon film 470 ohm 1/4W	RD14B2E471J (PSNB)
R245,246	241 2427 923	Carbon film 100 kohm 1/4W	RD14B2E104J (PSNB)
R301,302	241 2423 972	Carbon film 3.6 kohm 1/4W	RD14B2E362J (PSNB)
R441~444	244 2050 933	Metal oxide 180 ohm 1W	RS14B3A181JNBS(S)
R990~994	241 2427 923	Carbon film 100 kohm 1/4W	RD14B2E104J(PSNB)
VR301	211 0902 009	Variable resistor 30 kohm	V1620V25FB303R
VR303	211 0798 103	Variable resistor 100 kohm	V14V20FW104K
VR304	211 0834 012	Variable resistor 10 kohm	V14V20FA103K
VR305	211 0834 009	Variable resistor 30 kohm	V14V20FA303K
CAPACITORS GROUP			
C001,002	253 8003 713	Ceramic 4700pF/400V(AC)	CK45E2GAC472MC
C007	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)
C201~214	255 4237 929	Polypropylene film 56pF/100V	CQ93P2A560J(NH) Europe & Asia Models
C241,242	254 4261 918	Electrolytic 47μF/50V	CE04W1H470M
C301	254 3053 907	Electrolytic 10μF/16V	CE04D1C100MBP
C302	255 1265 936	Mylar film 0.01μF/50V	CQ93M1H103J(B)
C305,306	254 4260 977	Electrolytic 4.7μF/50V	CE04W1H4R7M
C307,308	255 4235 918	Polypropylene film 100pF/100V	CQ93P2A101J(NH)
C309,310	254 4313 963	Electrolytic 1μF/50V	CE04W1H010M(ASF)
C311,312	254 4254 941	Electrolytic 100μF/16V	CE04W1C101M
C313,314	255 1265 994	Mylar film 0.033μF/50V	CQ93M1H333J(B)
C315,316	254 4260 919	Electrolytic 0.22μF/50V	CE04W1HR22M
C317,318	254 4260 906	Electrolytic 0.1μF/50V	CE04W1H0R1M
C319,320	254 4260 935	Electrolytic 0.47μF/50V	CE04W1HR47M
C331,332	254 4260 922	Electrolytic 0.33μF/50V	CE04W1HR33M
C333,334	255 1265 994	Mylar film 0.033μF/50V	CQ93M1H333J(B)
C335,336	256 1034 953	Metalized 0.068μF/50V	CF93A1H683J
C341,342	255 1264 966	Mylar film 3300pF/50V	CQ93M1H332J(B)
C345	256 1045 706	Metalized 1μF/63V	CF93B1J105K(SA)
C401,402	255 4237 922	Polypropylene film 56pF/100V	CQ93P2A50J(NH)
C403,404	255 4237 961	Polypropylene film 150pF/100V	CQ93P2A151J(NH)
C405,406	255 4235 918	Polypropylene film 100pF/100V	CQ93P2A101J(NH)
C407,408	255 1264 966	Mylar film 3300pF/50V	CQ93M1H332J(B)
C409,410	254 4381 911	Electrolytic 100μF/10V	CE04W1A101M (ASF)
C411,412	254 4260 980	Electrolytic 10μF/50V	CE04W1H100M
C413,414	256 1034 953	Metalized 0.068μF/50V	CF93A1H683J
C415,416	255 1264 911	Mylar film 1200pF/50V	CQ93M1H122J(B)
C417,418	255 1265 965	Mylar film 0.018μF/50V	CQ93M1H183J(B)
C419,420	255 1264 908	Mylar film 1000 πΦ/50V	CQ93M1H102J(B)
C421	254 4381 911	Electrolytic 100μF/10V	CE04W1A101M (ASF)
C423	254 4313 934	Electrolytic 47μF/50V	CE04W1H470M (ASF)
C424	254 4461 718	Electrolytic 4.7μF/50V	CE04W1H4R7MC (ARS)
C425	254 4313 934	Electrolytic 47μF/50V	CE04W1H470M (ASF)
C429,430	255 1264 908	Mylar film 1000pF/50V	CQ93M1H102J(B)
C441	255 4235 934	Polypropylene film 0.01μF/100V	CQ93P2A103J(NH)

OTHER PARTS GROUP				Q'ty
CW034	203 4720 011	3P EH-SCN connector cord		1
CW061	204 0532 002	6P EH-SCN cord		1
CW062	204 0532 015	6P EH-SCN cord		1
CX062	205 0233 061	6P EH connector base		1
CX071,072	205 0343 074	7P connector base(KR-PH)		2
CX081	205 0343 087	8P connector base(KR-PH)		1
CX101	205 0375 000	10P connector base (KR-PH)		1
CX111	205 0375 013	11P connector base (KR-PH)		1
CY031~033	205 0343 032	3P connector base (KR-PH)		3
CY041	205 0343 045	4P connector base(KR-PH)		1
CY072	205 0343 074	7P connector base(KR-PH)		1
CY081	205 0343 087	8P connector base(KR-PH)		1
CY101	205 0480 005	10P KR connector base(L)		1
CY111	205 0375 013	11P connector base (KR-PH)		1
F1	206 1046 014	Fuse 8A	U.S.A,Canada & Taiwan R.O.C Models	1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
F1	206 1015 074	Fuse 3.15A	Europe & Asia Models	1
F8	206 1046 014	Fuse 8A	U.S.A,Canada & Taiwan R.O.C Models	1
F8	206 1015 032	Fuse 2.5A	Europe & Asia Models	1
JK201~204	204 8540 012	4P pin jack		4
JK205	204 8559 016	2P pin jack (S-GND)		1
JK402	204 8480 004	Head phone jack (SW)		1
L401~404	235 9003 002	FTZ choke coil	Europe & Asia Models	4
P002	205 0348 040	4P wrapping terminal		1
P003~005	205 0692 000	2P wrapping terminal		3
RL001	214 0142 004	Relay (TV-5)		1
SW001	212 1030 009	Power switch (TV-5)		1
SW201	212 1035 004	Slide SW (2-6) remote	INPUT SEL.	1
SW202	212 4331 006	Slide SW (4-6) remote	REC OUT SEL.	1
SW301	212 1169 006	1P push switch	S.DIRECT	1
SW302	212 1173 005	1P push switch	LOUDNESS	1
SW401	212 4728 004	1P push switch	MM/MC	1
T3	233 6230 005	Power trans. mini E3	U.S.A,Canada & Taiwan R.O.C Models	1
T3	233 6227 005	Power trans. mini E2	Europe & Asia Models	1
W301	203 0659 005	1P contact Ass'y		1
W401	203 0501 030	1P SIN con. Ass'y		1
	202 0040 909	Fuse clip	for F-001,008	4
		Knob	for SW401	1

EXPLODED VIEW

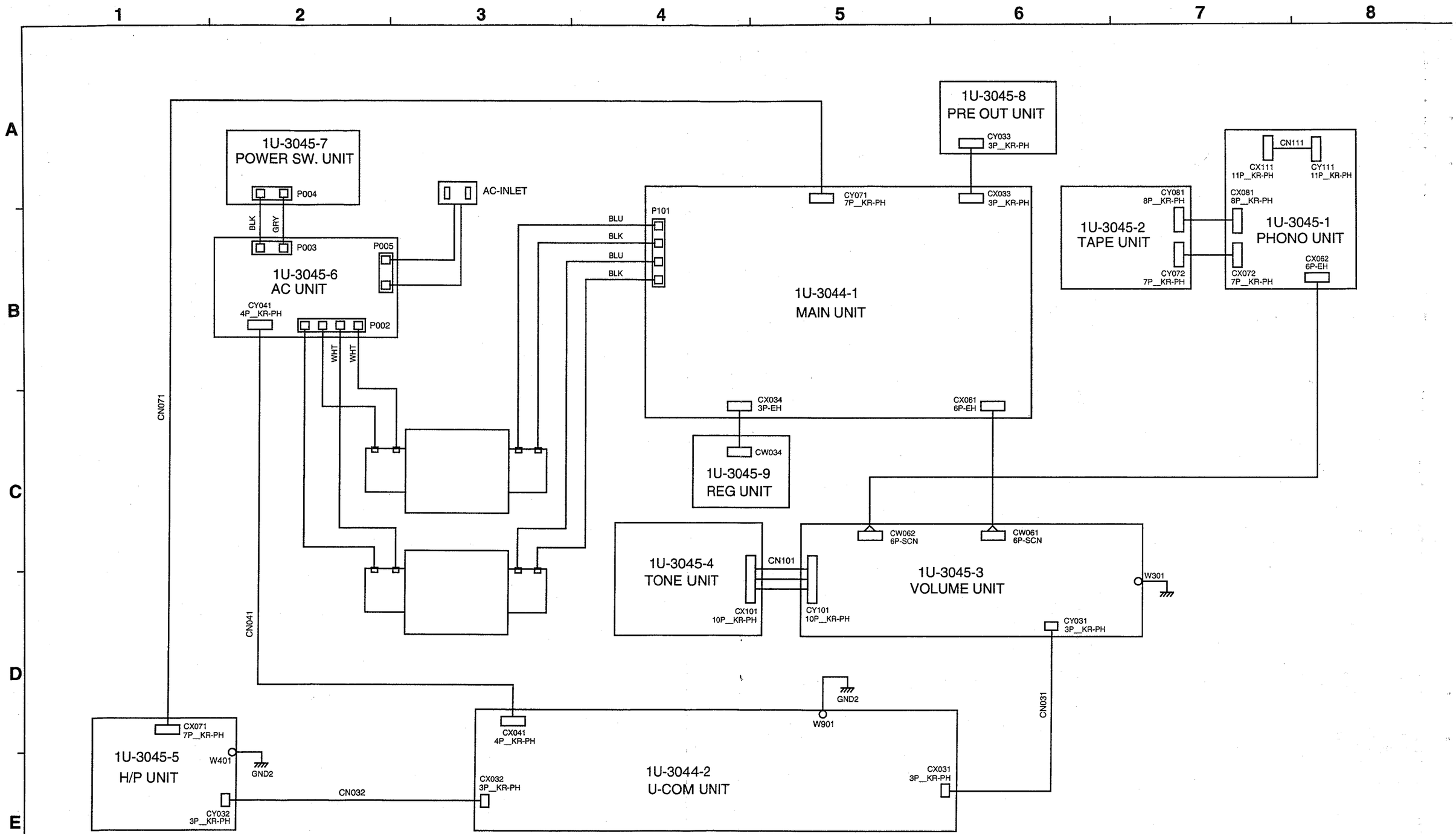
WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.



PARTS LIST OF EXPLODED VIEW

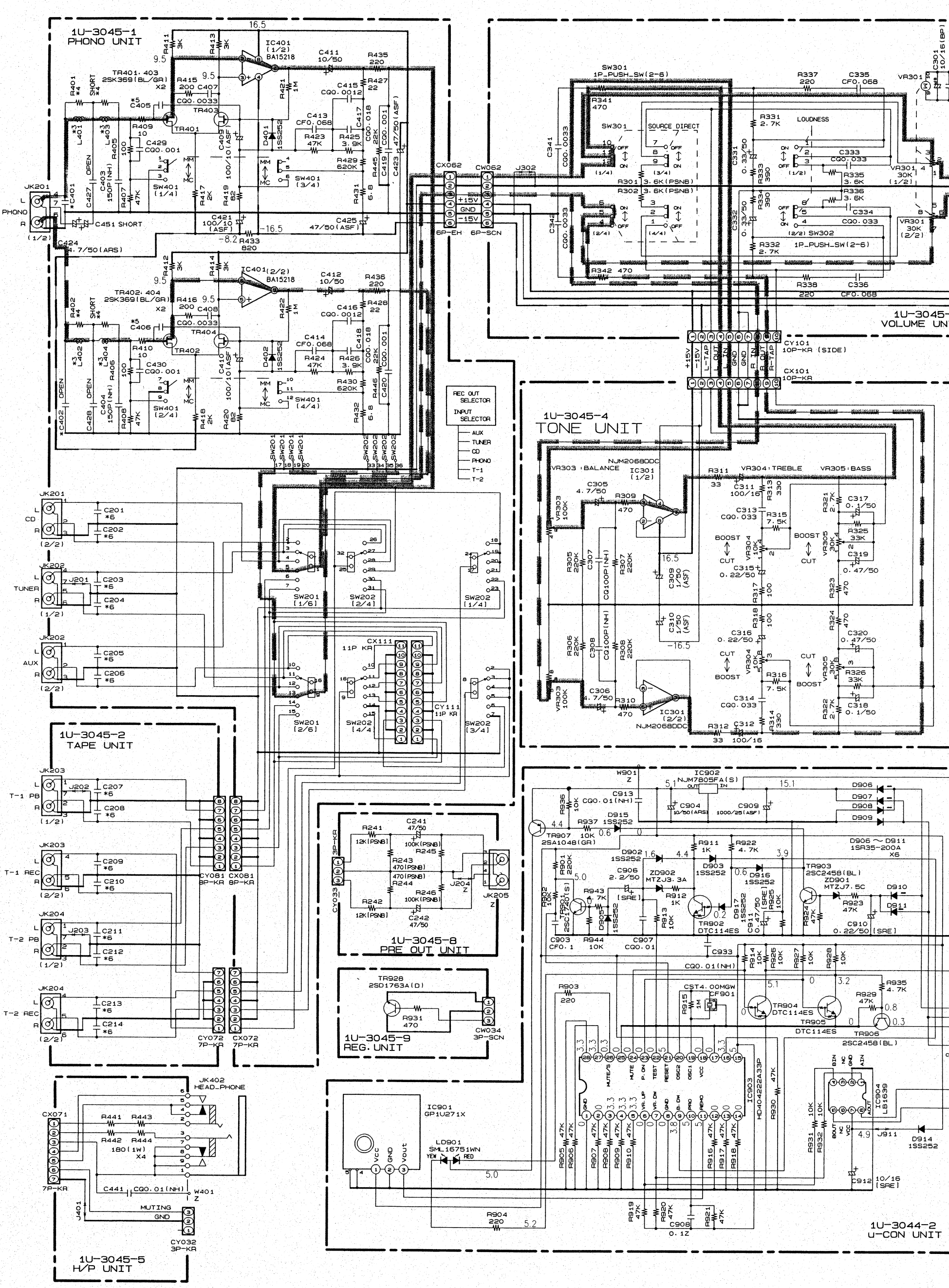
Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	1U-3044B	Main P.W.B. unit ass'y		1
1-1	1U-3044B-1	Main P.W.B. unit		
1-2	1U-3044B-2	U-COM P.W.B. unit		
2	1U-3045B	Phono P.W.B. unit ass'y	Europe & Asia Models	1
2-1	1U-3045B-1	Phono P.W.B. unit	Europe & Asia Models	
2-2	1U-3045B-2	Tape P.W.B. unit	Europe & Asia Models	
2-3	1U-3045B-3	Volume P.W.B. unit	Europe & Asia Models	
2-4	1U-3045B-4	Tone P.W.B. unit	Europe & Asia Models	
2-5	1U-3045B-5	H/P tape P.W.B. unit	Europe & Asia Models	
2-6	1U-3045B-6	AC P.W.B. unit	Europe & Asia Models	
2-7	1U-3045B-7	Power SW. P.W.B. unit	Europe & Asia Models	
2-8	1U-3045B-8	Pre out P.W.B. unit	Europe & Asia Models	
2-9	1U-3045B-9	REG. P.W.B. unit	Europe & Asia Models	
2	1U-3045C	Phono P.W.B. unit ass'y	U.S.A,Canada & Taiwan R.O.C Models	1
2-1	1U-3045C-1	Phono P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-2	1U-3045C-2	Tape P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-3	1U-3045C-3	Volume P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-4	1U-3045C-4	Tone P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-5	1U-3045C-5	H/P tape P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-6	1U-3045C-6	AC P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-7	1U-3045C-7	Power SW. P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-8	1U-3045C-8	Pre out P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
2-9	1U-3045C-9	REG. P.W.B. unit	U.S.A,Canada & Taiwan R.O.C Models	
3	411 1368 200	Main chassis		1
4	412 4268 203	Center bracket (L)		1
5	415 0516 039	Flexible bush		1
6	445 0048 016	Cord holder (L50)		1
7	412 4280 207	Center bracket (R)		1
8	412 4267 204	Support bracket		2
9	461 0974 001	Trans spacer		1
10	412 4269 008	Trans plate		1
11	104 0194 205	Foot ass'y		4
12	412 2741 036	P.W.B. holder (H=10)		4
13	412 2762 002	P.W.B. holder		1
14	105 1251 111	Back panel		1
15	205 0071 016	Terminal ass'y		1
16	477 0018 001	Washer (P-87)		1
17	203 4871 041	3P KR-KR ribbon 125	CN033	1
18	204 6350 039	11P KR-KR ribbon 100	CN111	1
19	204 2546 012	8P KE-KE ribbon 80	CN081	1
20	204 2543 057	7P KR-KR ribbon 150	CN072	1
21	205 1062 008	8P SP terminal		1
22	203 3975 003	AC outlet (E2)	Europe & Asia Models	1
22	203 3974 004	AC outlet	U.S.A,Canada & Taiwan R.O.C Models	1
23	144 2556 302	Front panel ass'y	Gold model	1
23	144 2556 315	Front panel ass'y	Black model	1
24	203 4871 096	3P KR-KR ribbon 250	CN031	1
25	203 4871 009	3P KR-KR ribbon 70	CN032	1
26	204 2552 019	10P KR-KR ribbon 80	CN101	1
27	412 2814 073	Card spacer (L=18)	TONE UNIT	1
28	441 1780 203	Plate (M)		1
29	113 1356 062	Push knob (MARU)	Gold model	2
29	113 1356 004	Push knob (MARU)	Black model	2
30	441 1781 202	Plate (F)		1
31	212 4805 008	Rotary remote switch	INPUT SEL.	1
32	212 4806 007	Rotary remote switch	REC OUT SEL.	1
33	203 6386 026	4P KR-KR ribbon 325	CN041	1
34	204 2544 098	7P KR-KR ribbon 500	CN071	1
35				
36	417 0549 316	Power radiator		2
37	275 0095 004	FET 2SK851	TR521-524	4
38	415 0234 007	Insulating sheet		4
39	412 3225 205	P.W.B bracket (A)		4
40	279 0034 041	Posistor PTH9M04BD222TS2F333	PH901,902	2
41	415 0309 013	P.V.C. tube (L=10)	for PH901,902	4
42	412 4266 205	Radiator bracket		2
43	477 0224 031	SP washer	P UNIT GEN	4
⚠ 44	233 6244 004	Power trans (E2)		2
45	513 1404 004	Power trans label (A)		2
46	445 8004 007	Wire clamper		10
47	113 9213 039	P. knob (P) ass'y	Gold model	1
47	113 9213 000	P. knob (P) ass'y	Black model	1
48	112 9123 126	Knob ass'y (M)	Gold model	1
48	112 9123 139	Knob ass'y (M)	Black model	1
49	112 9125 111	Knob ass'y (F)	Gold model	1
49	112 9125 124	Knob ass'y (F)	Black model	1
50	112 0796 109	Knob MARU ass'y	Gold model	4
50	112 0796 112	Knob MARU ass'y	Black model	4
51	461 0501 005	Rubber sheet	F/PANEL	3
52	102 0584 204	Top cover	Gold model	1
52	102 0584 217	Top cover	Black model	1
53	461 9036 005	Spacer		2
54	209 0012 006	Short pin		2
⚠ 55	203 3970 008	AC inlet	Europe & Asia Models	1
⚠ 55	203 3962 003	AC inlet	U.S.A,Canada & Taiwan R.O.C Models	1
56	143 0874 119	Remocon window		1
57	412 3225 218	P.W.B bracket (A)		2
58	412 2814 044	Card spacer (L=6)		2
59	415 9080 003	Teflon spacer		2
60	445 0048 003	Cord holder (L76)	L=76	4
61	461 0577 084	Rubber sheet		2
62	477 0096 007	Push rivet		8
63	417 0562 005	CU plate		2
SCREWS				
101	470 0009 022	Screw 3 x 6 CPS (SW.W) ZNP		4
102	473 7002 021	Screw 3 x 8 CBTS(S)-B		57
103	473 7003 017	Screw 3 x 8 CFTS (S)-B		2
104	473 7007 013	Screw 4 x 10 CBTS(S)-B		6
105	473 7026 007	Screw 4 x 6 CBTS(S)-B		8
106	473 7500 015	Screw 3 x 8 CBTS(P)-Z		11
107	473 7501 030	Screw 3 x 20 CBTS (P)-Z		1
108	473 7508 017	Screw 3 x 10 CBTS(P)-B		19
109	473 7511 017	Screw 3 x 12 CFTS (P)-Z		2
110	473 7520 011	Screw 2.6 x 10 CFTS(P)		4
111	473 8007 025	Cup screw 3 x 8		4
112	473 8007 038	Cup screw 3 x 14		5
113	477 0064 107	Fixing screw		5
114	477 0263 018	3P. swelling screw	Gold model	4
	477 0263 005	3P. swelling screw	Black model	4
PACKING & ACCESORIES (Not included EXPLODED VIEW)				
201	513 1581 008	Serial No. sheet		1
202	505 8006 019	Envelope		1
⚠ 203	206 2147 006	AC cord with connector	Europe & Asia Models	1
⚠ 203	206 2150 103	AC cord with connector	Taiwan R.O.C Models	1
204	511 3224 008	Inst. manual		1
205	515 0671 601	Service station list (EX)		1
206	394 0031 000	Battery UM-3		1
207	399 0465 008	Remote controller RC-837		1
208	504 9102 003	Stylen paper		1
209	505 9102 019	Poly. cover		1
210	503 1261 101	Cushion		1
211	517 1335 049	E2 POS label		1
212	513 1389 006	Control card base		1
213	501 1970 027	Carton case		1
214	513 1349 004	Thermal carbon film		1
215	513 9111 001	Color label (gold)	Gold model	2

WIRING DIAGRAM



SCHEMATIC DIAGRAM

1 2 3 4 5 6



7 8 9 10 11

A B C D E F G H

1U-3044-1 MAIN UNIT

1U-3045-3
VOLUME UNIT

1U-3045-6
AC UNIT

1U-3045-7
POWER SW. UNIT

	*1 F1	*2 F8	*3 L401 −404	*4 R401 −404	*5 C405 406 C511, 512	*6 C201 −214	*7 C401 402
Europe, Asia Models	T3.15A	T2.5A	150μH	1kΩ	100pF	56pF	56pF
U.S.A, Canada & Taiwan, R.O.C Models	8A/125V	8A/125V	OPEN	SHORT	OPEN	OPEN	OPEN

+B LINE
−B LINE
Lch SIGNAL LINE
Rch SIGNAL LINE

NOTICE

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:

Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is detective.

WARNING:

DO NOT return the unit to the customer unit the problem is located and corrected.